6

November-December, 1989
Volume 44, Number 6

Journal of Soil & Water Conservation

To advance the science and art of good land and water use worldwide

CONTENTS

Features

Commentary

Reports

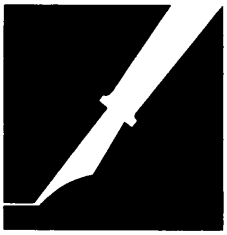
Departments

Cover: Soil erosion's effect on crop productivity, as here in the Palouse region, is still much in debate. See pages 600 and 604. Soil Conservation Service photo.

Journal of Soil and Water Conservation (ISSN 0022-4561) is published six times a year in January, March, May, July, September, and November by the Soil and Water Conservation Society, 7515 N.E. Ankeny Road, Ankeny, Iowa 50021-9764. Second class postage paid at Ankeny, Iowa, and additional mailing offices.
POSTMASTER: Send address changes to *Journal of Soil and Water Conservation*, 7515 N.E. Ankeny Road, Ankeny, Iowa 50021-9764.

Address all editorial and business correspondence to SWCS, 7515 N.E. Ankeny Road, Ankeny, Iowa 50021-9764; telephone (515) 289-2331. Subscription is by membership in SWCS or by subscription. Membership dues are $44 a year ($50 outside the U.S. and Canada); subscriptions are $30 a year ($35 outside the U.S. and Canada).

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



PEN POINTS

Goodbye to SDG

I refer to two recent papers on short-duration grazing (SDG) by F. C. Bryant, et al. ["Does Short-Duration Grazing Work in Arid and Semiarid Region?," pages 290-296] and Charles Taylor ["Short-Duration Grazing: Experiences from the Edwards Plateau Region in Texas," pages 297-303] in the July-August 1989 issue of the *JSWC*.

These researchers establish beyond reasonable doubt that the SDG system is a failure. Hopefully we can now bury this grazing system and waste no more time, money, or research manpower on it.

I coined the words "short-duration grazing" as a simple name for a process (note, not a grazing system) that we were developing in Africa in the 1960s. We were looking for a way to break away from grazing systems that we believed led to land deterioration.

In the 1960s, there was already abundant research that indicated that SDG, if run as a grazing system, would fail. For this reason, a grazing planning procedure was developed that catered for the ever-changing variables that occur in nature. Regretfully, the research on SDG has consistently omitted this essential procedure. Even if they had included it, however, we now know that while good results would be obtained on the land, we would not consider those results successful because factors other than land (soil, plants, animals) had to be considered.

What was missing is best summed up in a statement issued by scientists from nine nations at the end of the 1985 Arid Lands Conference sponsored by the University of Arizona, USAID, and the American Association for the Advancement of Science, among others: "An international committee of 13 arid lands scientists from nine nations have urged their colleagues to determine why years of effort to improve life in the world's dry regions have failed. Scientists must clearly tell global political leaders why those efforts have failed. It has become gravely evident that with few exceptions, the welfare of the people occupying many of the arid lands and the health of the underlying resources of air, water, soil and biota are continuing to degrade. It is not a simple matter of additional funds or of new technology or of further research along conventional lines. The central challenge is to translate our accummulated experience into approaches that see people in their environment whole, and to embody that view pervasively in new activity and policy."

Short-duration grazing was but a stepping stone in a long quest for a universal and consistently successful way of managing our basic resources—land, plants, animals, water, air, people, and finances. This quest has led a number of scientists, including myself, to conclude that resource management must be holistic to succeed. Holistic management to me is an approach that is non-disciplinary rather than integrated or interdisciplinary. It dispenses with the old mechanical world view in which nature was understood by isolating parts for study and replaces it with a holistic view in which there are no parts, but only wholes within wholes. We no longer manage plants, animals, and soils in isolation. People's values are equally important, as are the finances available to them, as is the air they breathe and the water they drink.

Although I no longer refer to short-duration grazing, the old planning procedure has survived as a crucial component of holistic resource management because it allows us to use livestock as a tool for restoring health to many environments.

There has been much confusion about my work over the years because there was a lack of written information.

Fortunately that has now been addressed in *Holistic Resource Management* (Island Press, 1988). It is already being used as a textbook in several universities and I hope it will clarify aspects that have puzzled some researchers. We are in our infancy in understanding how to practice holistic management, and we have need of information that scientists now wasting time on SDG research could supply.

Allan Savory
Center for Holistic
Resource Management
Albuquerque, New Mexico

Team is the key

The SWCS View, "Who qualifies to be on your team?" [*JSWC*, July-August, 1989, page 260] is one of the finest pieces of resource management advice we as "professionals" could ever hope to take-to-heart. Sound academic training is certainly an incalculable asset when considering the most effective solutions to problems confronting the arena of natural resources. But no degree (irrespective of what level) obtained from any public or private institution of higher learning has ever provided the individual with an all encompassing knowledge sufficient to solve the problems he or she will incur in the *natural* environment. That is where the little giant "experience" comes into play, particularly the experience of those lay persons whom we are trying to help.

We each can likely attest to those instances in our personal lives in which common-sense lessons and experiences have been gained that would prove beyond the scope of any school or textbook. If the truth were known, most of our so called "laymen" have a substantially greater monopoly on this commodity than we do. In fact, it is almost a necessity in order to survive in today's society. That is why, as [SWCS] President David Cressman indicated, we as resource professionals must be careful not to aleniate ourselves from such an important knowledge pool. Solutions to our natural resource problems are a concern not to be limited to a select group of analytically thinking people.

However, combining sound technical training with "real world" experience is the avenue whereby we can ever hope to attain our goal of solving even the most complex environmental issues confronting this world. Our willingness to do so today will perhaps be the greatest measuring tool of success or failure by subsequent generations.

I applaud Mr. Cressman for so effectively communicating these beneficial insights with the membership.

Jerry E. McIntosh
London, Kentucky

Manurial rights

For every pound of phosphorus polluting America's estuaries there are ten pounds of eutrophication-causing nitrogen entering the water. Yet nitrogen is not even mentioned in "Pollution Control in the Great Lakes Basin" [*JSWC*, January-February 1989, page 12]. Sanitarians typically point with pride to inexpensive phosphorus removal as evidence of achievement and ignore the worst culprit—difficult to remove nitrogen.

All we have to show for 250 million Americans using waterborne sanitation is a miniscule several million tons of sometimes toxic sludge leached of nearly all it's nutrients and hopelessly polluted groundwater, estuaries, and seafood sources. The honey bees have destroyed their honey instead of replenishing the earth as the good Lord intended (Genesis 1:28).

Better off Americans can afford to import seafood, good for the cholestrol, from Africa and polar regions. But for most folks and fishermen, the two-thirds of our shellfish areas that have been destroyed, are sorely missed. Ninety-five percent of nutrients in human waste that cause eutrophication and fish kills go through sewage plants into the river. Shouldn't we be looking for alternatives to the flush toilet?

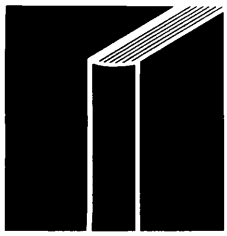
To properly process and recycle human and organic residuals, the dumbest thing to do is immerse them in water. Innovative aerobic systems use 97 percent less water and recover all the nutrients.

Fifteen people, for example, using community-wide installations of U.S. Process Patent 4285719, could provide enough sweet smelling zero coli worm casting soil ammendment to induce soil invertebrate populations in the tens of millions per acre of farmland.

Water pollution, erosion, runoff, and the need for toxic farm chemicals, sewers, and sewage plants are eliminated. Even the hardest of rains are absorbed and stored. Cropland resistance to droughts is improved for the greenhouse years ahead.

This is soil and water conservation. This is sustainable agriculture and regenerated seafood sources forever. We had better start the payback for the centuries of denial of the God-given manurial rights of Mother earth by Western man.

Jeremy F. Criss
Sykesville, Maryland



Holistic Resource Management. By Allan Savory. 564p. illus., refs., index. Island Press, Washington, D.C. 1988.

Range management and range science developed to halt the destruction of rangeland resources by livestock in western North America. That mission largely has been accomplished. Meanwhile, politics has changed the traditional goal of good range management: to sustain resource productivity while producing livestock products, and, this applies to less and less land. Rangeland owners and the public are instead insisting that range managers prove that livestock grazing can enhance other resources including water, wildlife, and recreation.

Holistic Resource Management is partly an autobiography describing Allan Savory's discovery of holism and partly a range management textbook for modern goals. Authors of other range management textbooks, including the first, *Range and Pasture Management* by A. W. Sampson in 1923, and the most recent, *Range Management* by Jerry L. Holechek, Rex. D. Pieper, and Carlton H. Herbel, in 1989, built on the work of others to develop principles and practices based on established facts. Savory has little use for this legacy, first claiming that he has discovered a better way of thinking, then debunking traditional range science as irrelevant to what he calls holistic resource management.

The many examples, based on the author's years of experience as a land manager-consultant in Africa and the United States, make fascinating reading.

Professional range scientists will find the observations and conclusions irritating, probably interesting, and maybe inspiring. The biggest problem with this book is not its several excellent ideas and occasionally accurate criticisms of mainstream range science, but its organization, conclusions, and proposed solutions. The book centers on the description and application of what Savory calls the four keys, which allowed him to unlock the potential of holistic resource management.

Holism, the first of the four missing keys to resource management, is defined as simply adding people to the ecosystem. A section on elementary ecology repeatedly comments on the lack of published references that are holistic, combining ecosystems with people. Although he acknowledges his debt to Smuts' *Holism and Evolution* written in 1928, Savory appears unaware of works like Margalef's classic 1968 book, *Perspectives in Ecological Theory,* which he should have read before claiming to have been the first to discover holistic resource management.

Several chapters are devoted to discussing brittle and nonbrittle environments, terms invented by Savory to describe the second missing key. Brittle environments have unreliable moisture for plants, a characteristic normally associated with rangelands. Brittle lands are claimed to be unique and to require special management—the third and fourth keys.

The third key to grazing management, according to Savory, is to recognize that overstocking is not the main cause of range deterioration. This assertion is both wrong and contrary to accepted range science. Savory has long claimed that land which he now calls brittle will support double the conventionally recommended stocking level, an announcement that initially bought him much support from livestock producers.

Savory devotes much of his book to what he calls time control or the time factor in management. This fourth key discovery is described as understanding the "...question of when animals are there as opposed to how many there are." A major benefit seems to be that if animals move through the system quickly enough the grazing capacity is increased. According to Savory the time factor is ignored by range scientists, when in fact it is discussed at length by Sampson and in every subsequent textbook. Sampson also noted in his 1923 textbook that overstocking is not the sole cause of range deterioration, but that the timing of use is another major factor.

The missing keys to holistic resource management simply turn out to have been lost to Savory or wrong. Good management of resources has been increasingly holistic for decades; brittle environments are ordinary rangelands; stocking rate is the most important factor in grazing management; and ecologists and range managers have always focused on and often understood the time factor. Holistic resource management itself is a model for a management system with little novelty and severe technical problems.

The last 300 pages of the book are devoted to a section called The Guidelines, which build on basic information in previous chapters. This section, which is designed as a guide to applications, is poorly organized and rambling, with over 20 loosely strung together chapters. Some chapters are excellent, like those on setting goals, financial planning, and practical wildlife management. Others are unsubstantiated opinions and anecdotes, often supported by illustrations.

Most of the photographs could be recaptioned and better explained by conventional range science. For example, Savory describes illustration 13-1 as an example of a remnant perennial grass patch in California annual grassland that could be expanded if holistic resource management grazing were applied. The illustration shows a clone of *Elymus triticoides,* a species which rapidly colonizes ungrazed grasslands without the help of holistic resource management.

The uneven editing, poor organization, and lack of clear definitions makes access to the central ideas difficult once past the introductory chapters. Although the index is good, the glossary is short with sloppy definitions and does not include important terms used in the text like: ecosystem, holistic, rotational grazing, or time control.

Savory developed and tried out his theories on grazing ecology and management with numerous cooperators, first in southern Africa in the 1970s, more recently in the southwestern United States. As the major evidence supporting his ideas, Savory writes in glowing terms about his successes in Africa. Others, like American range scientist Jon Skovlin, who revisited those lands in the mid-1980s, claim to have found little evidence supporting Savory's claims for beneficial effects and sustainable higher productivity and much evidence to the contrary. So far, Savory's claims have not been supported by independent tests

in the southwestern United States.

Those who apply Savory's approach do so at their peril. What is especially disturbing is that these methods, sold to an audience short of scientific knowledge and frustrated by conventional management options, are becoming popular with federal range managers. Modern range science is not perfect, but rangeland deserves better than to be subjected to a management experiment, this one holistic, without better justification. Although he sincerely intends to help the livestock producer, because so many of his facts are wrong Savory will help the burgeoning antigrazing movement in the long run. Conventional and significantly flawed range management textbooks are still the reliable source of information on which to base management.—*J. Bartolome, Department of Forestry and Resource Management, University of California, Berkeley.*

General

New Publications of the U.S. Geological Survey. 68 pp., 1989. U.S. Geological Survey, Reston, Virginia 22092.

Intellectual Property Rights Associated with Plants. B. E. Caldwell, J. A. Schillinger, J. H. Barton, C. O. Qualset, D. N. Duvick, and R. F. Barnes, editors. 206 pp., 1989. American Society of Agronomy, Madison, Wisc. 53711. $16.00.

Sustainable Development: A Guide to Our Common Future. By Gregory G. Lebel and Hal Kane. 77 pp., 1989. Oxford University Press, New York, N.Y. 10016.

United States Geological Survey Yearbook - Fiscal Year 1987. 138 pp., illus., 1988. Superintendent of Documents, Washington, D.C. 20402-9325. $9.50.

Environment, Energy, and Society. By Craig R. Humphrey and Frederick H. Buttel. Orig. Ed. 1982, Reprint 1986. 302 pp., Krieger Publishing Co., Inc., Melbourne, Fla. 32902-9542. $23.50.

Agriculture

Herbicide Application Technology in Mississippi Cotton. By Charles E. Snipes, William L. Barrentine, and Ralph S. Baker. 6 pp., illus., refs., 1989. Bulletin 956. Mississippi Agricultural & Forestry Experiment Station, Mississippi State, 39762.

Green Manuring: Principles and Practice of Natural Soil Improvement (third edition). Edited by William F. Brinton. 51 pp., illus., tbls., 1989. Woods End Agricultural Institute, Inc., Mt. Vernon, Maine 04352.

Losing Ground: Agricultural Policy and the Decline of the American Farm. By Hugh Ulrich. 278 pp., index, 1989. Chicago Review Press, Inc., Chicago, Ill. 60610. $18.95.

Fish and Wildlife

Audubon Wildlife Report: 1988-1989. Edited by William J. Chandler. 817 pp., illus., apps., 1988. Academic Press, Harcourt Brace Jovanovich, Publishers, Sand Diego, Calif. 92101-9665. $49.95.

Water in Catfish Production: Sources, Uses, and Conservation. By Jonathan W. Pote, Charles L. Wax, and Craig S. Tucker. 16 pp., illus., refs., 1988. Special Bulletin 88-3. Mississippi Agricultural & Forestry Experiment Station, Mississippi State, Mississippi 39762.

Forests

1987 Pulpwood Logging Contractor Survey: Southwest and Southeast Technical Divisions of the American Pulpwood Association. By W. F. Watson, G. A. Day, Jim Altman, T. J. Straka, D. W. Domenech, and R. K. Matthes. 16 pp., illus., refs., tbls., app., 1989. Tech. Bulletin 162. Mississippi Agricultural & Forestry Experiment Station, Mississippi State, Mississippi 38672.