SELECTIONS FROM THE MEDIA CENTER

To better serve you, the *Journal of Natural Resources and Life Sciences Education* now includes a "New Media Received" list for each issue of the journal. Following the list are several key reviews of books and other media that were hand-picked from the large number we receive. The journal continues to publish full-length reviews of media as a service to its readers.

New Media Received

Acid Rain—GEMS/University of California-Berkeley.

Back in Keith County—*John Janovy, Jr.* University of Nebraska Press. $9.00. Paperback. ISBN 0-8032-7560-9.

Biological Control: Learning to Live with the Natural Order—*USDA-APHIS.* National Biological Control Institute. (Videotape)

A Color Atlas of Plant Structure—*Brian G. Bowes.* Iowa State University Press. $65.95. ISBN 0-8138-2687-X.

Consider a Spherical Cow: A Course in Environmental Problem Solving—University Science Books. $58.00.

The Dynamic Environment—(Book and Software.) University Science Books. $33.50 (paperback). ISBN 0-935702-38-5 (Macintosh software); ISBN 0-935702-37-7 (Windows software).

Ecology in Education—*Edited by Monica Hale.* Cambridge University Press. $19.95. Paperback. ISBN 0-521-55669-4.

Elementary Statistics for Geographers, Second Edition—*James E. Burt and Gerald M. Barber.* Guilford Publications. $60.00. ISBN 0-89862-282-4.

Floods of Fortune: Ecology & Economy Along the Amazon—*Michael Goulding, Nigel J.H. Smith, and Dennis J. Mahar.* Columbia University Press. $29.95. ISBN 0-231-10420-0.

Food, Climate, and Carbon Dioxide: The Global Environment and World Food Production—*Sylvan H. Wittwer.* CRC Press/Lewis Publishers. ISBN 0-87371-796-1.

Forest Stand Dynamics, Update Edition—*Chadwick D. Oliver and Bruce C. Larson.* John Wiley & Sons. $35.95. ISBN 0-471-13833-9.

Global Warming & The Greenhouse Effect—GEMS/University of California-Berkeley. (Teacher's guide book.)

The Green Fuse: An Ecological Odyssey—*John Harte.* University of California Press. $12.95; £10.95. Paperback. ISBN 0-520-20551-0.

Insights & Outcomes: Assessments for Great Explorations in Math and Science—GEMS/University of California-Berkeley.

Journal of Tree Fruit Production (Vol. 1, No. 1, 1996)—*Edited by Wesley R. Autio.* Food Products Press (An imprint of The Haworth Press) $36.00 (individuals); $60.00 (institutions); $75.00 (libraries). ISSN 1055-1387.

Keith County Journal—*John Janovy, Jr.* University of Nebraska Press. $10.00. Paperback. ISBN 0-8032-7588-9.

Lewis Mumford and the Ecological Region: The Politics of Planning—*Mark Luccarelli.* Guilford Publications. $26.95. ISBN 1-57230-001-9.

The Living Fields: Our Agricultural Heritage—Cambridge University Press.

Maize in the Third World—*Christopher R. Dowswell, R.L. Paliwal, and Ronald P. Cantrell.* Westview Press. $65.00. ISBN 0-8133-8963-1.

Minding Nature: The Philosphers of Ecology—*Edited by David Macauley.* Guilford Publications. $18.95. Softcover. ISBN 1-57230-059-0.

Natural Enemies: Experience the Power—*Illinois Natural History Survey.* (Poster)

The Nature and Properties of Soils, Eleventh Edition—*Nyle C. Brady and Ray R. Weil.* Prentice-Hall. ISBN 0-02-313371-6.

New Trends in Biology Teaching, Volume V—*UNESCO.* Unipub. $20.00.

Of Men and Marshes—*Paul L. Errington.* Iowa State University Press. $16.95. ISBN 0-8138-2929-1.

On Becoming a Journalist—*John Janovy, Jr.* University of Nebraska Press. $9.00. Paperback. ISBN 0-8032-7586-2.

On the Rocks: Earth Science for Everyone—*John S. Dickey, Jr.* John Wiley & Sons. $16.95. Paperback. ISBN 0-471-13234-9.

Pests Have Enemies Too: Teaching Young Scientists About Biological Control—*Illinois Natural History Survey.* ISSN 0888-9546.

The Real Picture World Atlas—Now What Software. (CD-ROM) $34.95 each (2 disks).

Russian Education & Society. A Journal of Translations (Vol. 38, No. 5)—*Edited by Anthony Jones.* M.E. Sharpe Inc. Institutional Subscription Rate $674 USA, $760 Foreign; Individual Subscription Rate $125 USA, $160 Foreign. ISSN 1060-9393.

Sampling Techniques for Forest Resource Inventory—John Wiley & Sons. $67.95. ISBN 0- 471-1094-01.

Soils: An Introduction. Third Edition—*Michael J. Singer and Donald N. Munns.* Prentice Hall. ISBN 0-13-449174-2.

Space, Text, and Gender: An Anthropological Study of the Marakwet of Kenya—*Henrietta L. Moore.* Guilford Press. $17.95. ISBN 0-89862-825-3.

System Behavior and System Modeling—*Arthur A. Few.* (Book and Software.) University Science Books. $29.50. ISBN 0-935702-83-0 for Windows version; 0-935702-88-1 for Mac version.

Teacher Evaluation: Guide to Effective Practice—*Anthony J. Shinkfield and Daniel Stufflebeam.* Kluwer Academic Publishers Group. $115.00; Dfl. 210.00; UK £81.75. ISBN 0- 7923-9581-6.

Tree Basics—*Alex L. Shigo.* Shigo and Trees, Associates. $19.00 plus $4.00 S&H. ISBN 0- 943563-16-X.

Trees of the Northern United States and Canada—Iowa State University Press. $39.95. ISBN 0-8138-2740-X.

Weeds of the United States—Southern Weed Science Society. (CD-ROM) $90.00 (single copy).

BOOK

Animal Cell Technology; Basic and Applied Aspects—Proceedings of the Sixth International Meeting of The Japanese Association for Animal Cell Technology—*Edited by T. Kobayashi, Y. Kitagawa, and K. Okumura.* Kluwer Academic Publishers, P.O. Box 17, 3300 AA Dordrecht, the Netherlands. 1994. 615 p. Hardcover. $262.50.

Biotechnology in the life sciences is an important and relatively new area, which has grown logarithmically over the last decade. This book is approximately 1 of 200 biotechnology symposium proceedings published over the last decade. Many of these published symposia are speculative ventures by the publishers to hopefully

generate profits using the *shotgun* approach.

There are 114 titles of papers presented at the symposium listed in the Table of Contents; however, 22 of the titles listed did not have manuscripts submitted for inclusion in the book. The book includes: sections on process validation for removal of viral impurities in bio-drug purification; use of insect cell culture for microbial vaccine production and expression of animal hormone receptors; production, characterization, and clinical use of monoclonal antibodies; use of transgenic animals for production of products for therapeutic uses; cell culture technology in tissue and organ engineering; fish cell biotechnology use for embryonic cells, growth factors, and microbial agents; novel bioreactors for animal cell culture; cell culture for high-performance production of biological products; recombinant animal gene expression in various cultured cells; establishment and properties of functional cells; serum and protein-free culture; enhancement of productivity and lost performance for producing biochemicals; cell culture engineering and high density culture; use of cell culture for assessment of physiologically active substances; process validation of bio-drug purification; and biological properties of proteins produced by animal cells.

The individual papers published are well written, informative, and most are highly specialized and technical. Thus, only a few papers in the book would be of interest to each individual reader in different scientific disciplines. Since general concepts of animal cell technology are limited, this book is not recommended as a textbook, but could be useful in reference libraries.—YOSHIE SUZUKI WEEMS and CHARLES W. WEEMS, *Department of Animal Sciences, University of Hawaii, Honolulu, HI 96822 (weems@hawaii.edu).*◆

BOOK

Ecology and Integrated Farming Systems—*Edited by D.M. Glen, M.P. Greaves, and H.M. Anderson.* John Wiley & Sons, 605 Third Avenue, New York, NY 10158. 1995. $95.00.

This book is a compilation of the proceedings of the 13th Long Ashton International Symposium entitled, "Arable Ecosystems of the 21st Century," held at the IACR–Long Ashton Research Station, Bristol, UK, 14–16 Sept. 1993. The papers that make up this monograph focus on various aspects of integrated farming systems. Topics include public policies related to integrated farming; plant diversity and integrated weed management; crop–weed interactions; relationships between soils, crops, and habitat of insect pests; diversity in farming landscapes; environmentally friendly nutrient management; as well as results of ongoing integrated farming systems studies. Emphasis is on European and North American ecological studies relevant to integrated arable farming systems.

Although most of the studies are oriented toward European agriculture, much of the information in this book provides a refreshing approach to examining the ecological aspects of agriculture in the USA. Researchers interested in sustainable agriculture will find the approaches of examining different aspects of land–crop–weed–pest interactions useful in developing and evaluating agricultural systems.

The editors have put the 18 papers in this book together in chapter form. Since each individual paper can stand alone, their titles, authors, and location are listed below in the order that they appear in the book:

- "Integrated Agricultural and Environmental Policies in the European Community" by A.E. Nychas of the Commission of the European Communities, Directorate General for the Environmental, Nuclear Safety and Civil Protection, Brussels, Belgium.
- "Plant Diversity in Arable Ecosystems" by R.L. Hall of the Department of Plant Sciences, University of Oxford, UK.
- "Integrated Weed Management" by G.W. Cussans of IACR–Rothamsted, Harpenden, UK.
- Crop–Weed Interactions: Quantification and Predictions" by L.A.P. Lotz, J. Wallinga, and M.J. Kropff of the DLO–Research Institute for Agrobiology and Soil Fertility, Wageningen, the Netherlands, and the International Rice Research Institute, Manila, the Philippines.
- "Weed Control in Organic Farming Systems" by J. Rasmussen and J. Ascard of the Danish Ministry of Agriculture, Department of Weed Control and Pesticide Ecology, Slagelse, Denmark, and the Swedish University of Agricultural Sciences, Department of Agricultural Engineering, Section of Horticultural Engineering, Alnarp, Sweden.
- "Ecological Theory, Pest Problems, and Biologically Based Solutions" by D. Pimental, Department of Entomology, Cornell University, Ithaca, NY.
- "Effects of Soil Management on Cereal Pests and Their Natural Enemies" by D.A. Kendall, N.E. Chinn, D.M. Glen, C.W. Wiltshire, L. Winstone, and C. Tidboald of the Department of Agricultural Sciences, University of Bristol, IACR–Long Ashton Research Station, Bristol, UK.
- "Plant/Insect Interactions in Farmland Habitats: the Utility of Seed-reducing Insects in the Suppression of Alien, Woody Weeds" by V.C. Moran of the Science Faculty, University of Cape Town, South Africa.
- "Habitat Management for Enhanced Activity of Natural Enemies of Insect Pests" by S.D. Wratten and H.F. van Emden of the Department of Entomology and Animal Ecology, Lincoln University, New Zealand, and School of Plant Sciences, University of Reading, UK.
- "Perspectives from an Experimental Study of Habitat Fragmentation in an Agroecosystem" by R.D. Holt, D.M. Debinski, J.E. Diffendorfer, M.S. Gaines, E.A. Martinko, G.R. Robinson, and G.C. Ward of the Department of Systematics and Ecology, University of Kansas.
- "Landscape Ecology of Insect Movement in Arable Ecosystems" by G. Fry of the Norwegian Institute for Nature Research, The Norwegian Agricultural University, Norway.
- "Farming Landscapes and Insects" by F. Burel and J. Baudry of the CNRS, Laboratoire d'Evolution des systemes naturels et modifies, Universite de Rennes 1, France, and the Institut National de la Recherche Agronomique, SAD Armorique, France.
- "Spatial Aspects of Animal and Plant Distribution in Pateley Farmland Habitats" by J.N. Perry of the Farmland Ecology Group, IACR–Rothamsted, Harpenden, UK.
- "Ecological Aspects of Integrated Farming" by A. El Titi of the State Institute for Plant Protection, Stuttgart, Germany.
- "Development of Ecological Nutrient Management with Pilot Organic Farms" by H. Kloen and P. Vereijken of the DLO–Centre for Agrobiological Research, Wageningen, the Netherlands.
- "Bridging the Gap between Environmentally Acceptable and Agronomically Desirable Nutrient Supply" by A.P. Whitmore and M. Van Noordwijk of the DLO–Research Institute for Agrobiology and Soil Fertility, Haren, the Netherlands.
- "Ecological Aspects of SCARAB and TALISMAN Studies" by M. Hancock, G.K. Frampton, T. Cilgi, S.E. Jones, and D.B. Johnson of the ADAS Boxworth, Boxworth, Cambs, UK, Department of Biology, University of Southampton, UK, and the School of Biological Sciences, University of Wales, UK.
- "Less-intensive Farming and the Environment: an Integrated Farming Systems Approach for UK Arable Crop Production" by V.W.L. Jordan and J.A. Hutcheon of the Department of Agri-

cultural Sciences, University of Bristol, IACR–Long Ashton Research Station, Bristol, UK.

Although this book could be used as a text for advanced courses in crop production or crop ecology, it would not be suitable for undergraduate courses. Because the book's orientation is to the interactions between various components of the agricultural landscape and ecology, this book will make an excellent reference for researchers in agroecology and sustainable agriculture.—LARRY J. CIHACEK, *Soil Science Department, North Dakota State University, P.O. Box 5638, Fargo, ND 58105 (cihacek@badlands.nodak.edu).*◆

Book

Land Degradation: Development and Breakdown of Terrestrial Environments—*C.J. Barrow.* Cambridge University Press, 40 West 20th Street, New York, NY 1001-4211. 1991. 295 p. Softcover. $29.95.

The author states in the preface that he "...wanted to give the reader an idea of "where we stood" with the emphasis on why, where, and to what degree, degradation was occurring, rather than on avoidance or cures." Within these objectives the book does an excellent job of providing a broad overview of the various kinds of land degradation. Discussions range from the familiar (e.g., land degradation from soil erosion) to less studied but equally important topics (e.g., land degradation as a consequence of warfare) to more esoteric topics (e.g., land degradation caused by the burial of the dead). An abundant supply of statistics are given to provide the reader with estimates of the state of land degradation in the world today from a number of different sources.

The book starts out with an overview chapter followed by a chapter that explores reasons for the occurrence of land degradation. I found these two chapters to be engaging and helpful in portraying the complexity of land degradation. The author provides a cohesive skeleton for the rest of the book in these two chapters. I especially found helpful the presentation of why environmental degradation occurs. A variety of explanations are summarized in Table 1.1 based on an extensive review of environmental/development literature from the 1960's to the present. This review is continued in the next chapter with a discussion of nine different theses put forward to explain why land degradation takes place. The second chapter continues with a discussion on ecosystem stability and concludes with a short section on the meaning of sustainability and sustainable development.

The next two chapters cover topics involving land degradation through global pollution. The author provides a strong argument for making a connection between global atmospheric changes and future land degradation. Chapter 3 covers the potential effects of increased "greenhouse gases" and associated climatic change on land degradation. Chapter 4 has extensive coverage of the effects of acid deposition on land degradation. The effects of ozone depletion in the stratosphere and increased ozone in the troposphere on land degradation are also detailed in this chapter.

One of the strengths of the book is its global and ecosystem perspective. Four chapters are devoted to detailing land degradation in a large number of ecosystems. By bringing together information from diverse reference sources these chapters serve as a valuable repository of previously scattered knowledge on ecosystem specific land degradation. Besides inventorying the current state of affairs in a wide range of ecosystems, these chapters also have extensive introductions to the general land degradation processes of deforestation (Chapter 6), and desertification (Chapter 8).

Chapters 9 and 10 are rather brief introductions to the subjects of nonerosive and erosive soil degradation. The brevity of these discussions inevitably leads to a few overgeneralizations. As an example, an increase in the occurrence of saline seep formation in the northern Great Plains since 1945 is correctly attributed to the use of crop-fallow systems that result in an excess of soil moisture over evapotranspiration. However, this phenomenon is incorrectly described as occurring from increased snow holding capacity of a crop-fallow system compared with rangeland. It is rather a result of the lower total evapotranspiration found in wheat-fallow systems compared with perennial grass rangeland. If one keeps in mind that the objective of this book is to provide an overview of land degradation rather than a comprehensive text covering detailed physical mechanisms of degradation, then one can overlook the tendency to simplify detailed physical and chemical mechanisms. The reader should go to more comprehensive texts for a greater understanding of the specific phenomenon covered in these two chapters.

A survey of lesser known forms of land degradation are covered in Chapter 11. Of particular importance and interest is the section on land degradation as a consequence of warfare. The long-term effects of modern warfare on land degradation is sobering. The author points out that in Northern Africa there are between 5 and 19 million mines left over from World War II that are still a threat to local populations. Indochina is estimated to have 2 million unexploded bombs and 23 million unexploded shells scattered throughout the countryside making farming in some locales an extremely hazardous occupation. Further land degradation in warfare comes from bomb craters (Vietnam has more than 25 million bomb craters), defoliation of vegetation, potential contamination by radiation, chemical and biological agents, and indirectly from neglect and abandonment of the land. One hopes that large-scale manipulation of the environment such as alteration of regional weather patterns, triggering of earthquakes, and other forms of large-scale land degradation never become a useable military strategy.

The final chapter concludes with a discussion of some preventative and remedial strategies for conservation. Two main conservation goals are given in the chapter: (i) protect habitats, and (ii) protect plants and animals. Further discussions in this chapter center on the characteristics of effective conservation areas including shape, size, configuration, land characteristics, and management strategies for both conservation and surrounding areas. There is an extensive reference section and a comprehensive index at the end of the book.

This book would make a very good text in classes that are surveying the state of land degradation in the world today. However, it is likely to get more widespread use as a class reference and supplemental text in environmental management and conservation courses. The book is suitable for use as a reference and supplemental text in undergraduate courses and will be of value as a general reference to individuals interested in the topic of land degradation.—TOM E. SCHUMACHER, *Plant Science Department, South Dakota State University, Brookings, SD 57007 (px11@sdsumus.sdstate.edu).*◆

Book

This Fragile Land: A Natural History of the Nebraska Sandhills—*Paul A. Johnsgard.* University of Nebraska Press, 312 North 14th Street, Lincoln, NE 68588-0484. 256 p. Cloth. $35.

This treatment of the natural history of the Nebraska Sandhills and surrounding areas is by the highly respected ornithologist, Paul Johnsgard, who has authored 33

other books on numerous ornithology subjects. He does a very good job of drawing together various aspects of the natural history of the area for the specialized biologist, those involved in the management of the Sandhills, or anyone with an interest in natural history.

The book is divided into three parts. Part 1 consists of the first five chapters and is entitled "Echoes of Eden: An Overview." The first chapter describes the geological origin of the Sandhills and the next four chapters describe the geology and the plant and animal ecology of the formations north, west, south, and east of the Sandhills including the Niobrara Valley, Pine Ridge, High Plains, Loess Hills, Platte Valley, and the True Prairie. The next five chapters, entitled "Sandhills Scenes: Tales Told in Sand," comprise the heart of the Nebraska Sandhills natural history. In this section the author devotes the first chapter to an overall picture of the Sandhills using detailed examples of the burrowing owl and box turtle. In addition, trends in bird populations are presented. The following four chapters in this section deal with the upland sandhills (dunes), the lowland (subirrigated and wetland sites), the streams and rivers, and the marshes and lakes. In these chapters, the author describes and integrates the natural ecosystems, including plants, but uses more detailed examples of vertebrate and invertebrate animal relationships. There is a strong emphasis on birds, which would be expected and desirable considering the author's rich background in ornithology. The last two chapters of the book comprise a section entitled "Purviews and Prospects: The Once and Future Sandhills." In the first of these chapters the author describes the settlement of the Nebraska Sandhills, the development of ranching, and both historic and modern attempts at farming. The last chapter is a general discussion of the negative effects of pesticide and fertilizer-intensive agriculture on water quality. This chapter emphasizes pesticide and nitrate accumulations in groundwater and primarily draws on material outside of the Sandhills. The author points out that the Sandhills, even though fragile can [and have] been managed safely and responsibly. Another valuable feature of this book are the seven appendices. These include a time scale of Cenozoic events with Sandhills examples, an ecological checklist of sandhills vertebrates and vascular plants, a distributional checklist of sandhills birds, parks and preserves in the Sandhills, vernacular and scientific names of plants and animals mentioned in the text, and finally, a very helpful glossary of terms. A bibliography of more than 300 references completes the book.

This book relates many of the aspects of the natural history (often including drawings) of the Nebraska Sandhills in an enjoyable and readable way. Considerable emphasis is placed on birds, and classical vertebrate and invertebrate examples are used. The plant aspect is based primarily on early descriptive ecological works, especially those of Raymond Pool. More recent work might have augmented Pool. The use of modern range site names would make it easier for the reader to relate descriptions to current terminology. Often, older common and scientific plant names are used. These are not major concerns compared with the value the book has in describing the natural history and some of the social history of the Nebraska Sandhills. The book contains a large number of the author's own high-quality illustrations of birds, mammals, and some invertebrates. These drawings add tremendously to value and reading pleasure of the book. A number of useful maps are included as well.

I would recommend this book very highly to persons who are associated in any way with the Nebraska Sandhills, whether interested in production, service, science, or recreation. It combines the natural history with some of the social issues of the Sandhills. In addition, the book would be valuable to anyone with interest in ecology or natural history. This concise, easy reading book would make interested persons aware of the natural history of this unique and lesser known grassland formation.—LOWELL E. MOSER, *Department of Agronomy, P.O. Box 830915, University of Nebraska, Lincoln, NE 68583-0915 (agro043@unlvm.unl.edu).*◆

Book

Landscape Forestry—*Stephen G. Boyce.* John Wiley & Sons, 605 Third Avenue, New York, NY 10158. 1995. Hardcover. $69.95.

This book has four purposes, including: "to help managers and landowners rearrange forested landscapes to fulfill the changing demands of consumers; to help consumers understand why forested landscapes produce baskets of benefits in the aggregate rather than as separate items; to simulate the consequences of rearranging forest landscapes before changes are made; and to help growing populations arrange forested landscapes for living the way they want to live" (p. vii). The book develops a series of computer simulation models that manipulate the rate or timing at which forest stands are harvested, the size of canopy openings created in the harvesting process, and the manner in which the forest will be regenerated. Application of the models across time to a forested landscape containing diverse stands allows the evolution of different states of organization of the landscape to evolve. At each time interval, the landscape's state of organization is characterized in terms of hectares of stand types in various age classes.

The net present value of timber resources evident in each state of organization is calculated, and supplementary models evaluate each state of organization as habitat for the pileated woodpecker and for two guilds of spiders. The pileated woodpecker and the spider guilds are used as indicators for biological diversity. Normalization of values allows indices of net present value to be compared with indices of woodpecker habitat and indices of spider habitat at each state of organization. In this manner, cash flow benefits of forest management are compared graphically with biological diversity benefits.

The "basket of benefits" derived from different management policies is also identified (at least those pertaining to cash flow and biological diversity) and compared. The author compares a policy of forest reserves, a policy of "traditional forestry" wherein cash flow benefits are maximized within the construct of sustained yield, and a policy of landscape forestry or "the art of organizing forested landscape to produce baskets of benefits that require two or more stands ordered over space and flow" (p. 3).

The modeling of complex benefit packages derived from forest management is, itself, a complex task. Not only must one identify the "states of organization" of a forested landscape over time, one must also evaluate the effect of each state on specific benefit packages and then find a measurement scale that is commensurate with all benefit packages. In this regard, the author has succeeded. The book works from stand data for landscapes in the southeastern USA and projects these data into future states of organization based on explicit policies for forest harvesting and regeneration. Each state is then evaluated based on criteria related to net present value and biological diversity. Accompanied by a laboratory using the software described by the author, the book would be suitable as a text for advanced students of forest management. Indeed, the book represents a needed opportunity for students to gain first-hand experience in the production of multiple benefits packages. The cumbersome writing (e.g., "Rates of flow for land from levels are area-dependent when rules are for positive feedback. Unequal rates of natural mortality from age class 01 is calculated as land area in 01 divided by a delay of 150 years." p. 111) and analytical approach of

the simulations make the book unsuitable for entry level students.

One would hope that future editions of this book will extend the benefits included in the simulation process from net present value and biological diversity to also include other indicator guilds and species for biological diversity (e.g., neo-tropical birds, herptofauna, and wide-ranging mammals), nutrient flows, recreation opportunity, and aesthetics. As additional benefits are added to the model, it would also be helpful to identify more explicitly the bases upon which the supplementary evaluation models are developed.

Many of the supplementary models used to evaluate benefit packages derived from different states of organization will also require a more explicit spatial dimension. The evolving field of landscape ecology has taught us that many species use forest stands in spatially explicit manners. Thus, it is insufficient to know that a landscape at some future point in time will contain a specified hectarage of upland hardwoods between 51 and 60 years old. Evaluation of that stand for habitat, recreational opportunity, and aesthetic benefit will need to know about the distribution and configuration of the stand across the landscape and the spatial relationship of that stand relative to other stands. Similarly, inclusion of nutrient flow as a component of the model will need to characterize patterns of energy and material transfer across stands. In the simulation's current operating procedures, these issues of space must be considered outside of the model. Referencing of the model to a geographic information database would enable spatial parameters to become a more integral part of the simulation.

Finally, the author describes management models as being based on negative feedback approaches wherein corrections to states of organization are undertaken to achieve specific objectives. Natural systems are characterized as operating under positive feedback and therefore without goals or directed flows of energy and materials. The premise of the entire simulation approach is that the positive feedback of natural systems must be converted to negative feedback systems designed to achieve a complex set of specific objectives. One wonders how the model would accommodate existence values.—DAVID G. PITT, *Department of Landscape Architecture, 110 Architecture Building, 89 Church St. SE., University of Minnesota, Minneapolis, MN 55455.*◆


Software

The HYDRICsoils Disc: Multimedia Methods to Teach Hydric Soils—*Mary Collins.* IFA Publications, University of Florida, Gainesville, FL 32611. 1995. $75.00.

The HYDRICsoil multimedia disk conveys important ideas and concepts related to hydric soils. The technical information is well presented. The configuration and installation procedure of the CD and supporting programs and drivers needs more work and could to a large degree be automated. Users would find helpful the inclusion of a keyword index that is hyperlinked to the appropriate section or menu item. More hyper-links within the section would also improve the value of the CD presentation. The Criteria for Hydric Soils (Main Menu) refers to Corps of Engineers Definition of Hydric Soils, Criteria for Hydric Soils that could be but are not hyper-linked, making navigation unhandy at best. The information presented within this program is suitable for entry-level wetland determinations and determination processes.—ROBERT D. NIELSEN, EARL LOCKRIDGE, and MIKE WHITED, *National Soil Survey Center, 100 Centennial Mall North, Lincoln, NE 68508-3866 (rdn@nssc1000.nssc.usda.gov).*◆


Book

Crop Production: Evolution, History and Technology. First Edition—*C. Wayne Smith.* John Wiley & Sons, 605 Third Ave., New York, NY 10158-0012. 1995. 469 p. Hardcover. $59.95.

With the need for holistic and system approaches in agronomy and research today, undergraduates in agriculture should be exposed to training that encompasses crop information on origin, use, morphology, stages of growth, production practices, pests, crop grades and standards, terminology, and sources of additional information. This text pulls together this information on eight crops in the USA. Corn, wheat, grain sorghum, barley, rice, cotton, soybean, and peanut crops are examined.

With good introductory courses under their belt in agronomy, junior undergraduates would benefit utilizing the information in this crop production text. The system approach used in the book outlines a straightforward syllabus. The text easily allows the instructor to include and mesh sideline information. The crop origin information is interesting. The history sections are shorter than those presented in the older *Principles of Field Crop Production* (3rd edition) by Martin, Leonard, and Stamp. The updated history in this new text combines facts and theory to bring the crop information into perspective for the student while nudging it into memory. The crop use sections summarize past and current industrial use along with some information on discovery occurrence. The morphology, stages of growth, and production practices sections provide an overview and review of introductory agronomy courses, plus add detail onto this base. The sections are written in an applied manner, which will be functional for students that move on to farming or on into research. The pest section is useful and summarizes key insects and diseases prevalent in each crop. The conciseness of the text allows the instructor to pull additional, current publications to enhance the text information. The grades and standards section supplements the comprehensive overview provided by the text.

Few students are exposed to all facets in crop production. This text provides an early chance to view many different roles an agronomist may provide. The glossary at the end of each crop is an added bonus to the student. Key terminology within each crop section helps students review or learn the terms for the first time. The bibliography at the very end of each crop section mixes texts, journal publications, extension publications, and experiment station papers to provide a diversity of information. And, these references can be pulled into the areas where more coverage is desired.

The text would be a useful addition in agronomy undergraduate programs. The text is written clearly and provides a good overview of several crops with terminology and references provided. The text is very usable to upper agronomy students with diverse levels of experience. The strongest point of the text is the ability to supplement the book with additional publications and provide a systems-oriented approach, which highlights stages of growth, production practices, integrated pest management, and grades/standards for each crop.

Other items I wish the text included were additional crops—if not in a complete format, at least to show the spectrum of diversity. The crops could be expanded over the years with new editions. I also prefer more information in tables and maps on crop maturity ranges and locations, so students could take this information to plan a multi-year cropping rotation between years and within seasons. This information could, however, be supplemented regionally through other publications. The soybean

adaptability groups map was a good overview, but regional information would more precisely show adaptability. Also useful would be examples of why and how to choose varieties so that students could see the advantages of on-farm testing and would know where to seek additional information.

The editing of the text provided a smooth, finished product. I could see the experienced effects from the author and the acknowledged contributors in the comprehensive format of the text. The organizational logic is excellent for teaching and provides an organized base from which the students can learn. The real bonus to the information arrangement was the ease with which additional publications could be brought into the format and how a lab could be easily incorporated into the classroom. The illustrations were useful and well placed. The bibliography was current and helpful. The text was so interesting it left me wanting to know more. The format lends itself to easily prescribed testing sections by crop. Wisely, the author stayed away from pesticide recommendation, which increases the longevity of the text and allows this information to be segregated to a following class or supplemented with current bulletins.—DENISE McWILLIAMS, *University of Minnesota, West Central Experiment Station, Morris, MN 56267 (mcwillda@caa.mrs.umn.edu).*◆

Outdoor Recreation: United States National Parks, Forest, and Public Lands—*Charles I. Zinser.* John Wiley & Sons, 605 Third Ave., New York, NY 10158-012. 1995. 898 p. Hardcover. $89.95.

As the title suggests, this book is about outdoor recreation in the USA. It is primarily about outdoor recreation on federal lands. The author accurately states that this book will serve a diverse audience. In particular, he states his audience is university students in courses related to land use planning, resource management, and conservation; and tourists from both the USA and abroad. With respect to the latter group, the author further states the book will serve as a major reference for helping to plan vacations and use leisure time (p. xvii).

The book consists of 14 chapters, followed by an extensive epilogue section with 24 appendices and nine maps. The first chapter is basically an introduction to recreational resources in the USA and how various federal land managing agencies have gone about classifying these lands for planning and management purposes. I found this chapter somewhat inadequate and misleading. The book is about federal lands, yet the examples given in this chapter are largely about New York state public lands and the classification system used by New York state public land managers. I looked for a discussion, or at least brief mention, of the recreation opportunity spectrum (ROS), which is the planning and management framework that drives recreation opportunity classification and strategic planning and management for both the U.S. Forest Service and the Bureau of Land Management (BLM). It was not until Chapter 8 that ROS was mentioned. I looked for, but did not find, a discussion of the visitor experience resource protection (VERP) planning and management framework, which the National Park Service is currently piloting in a number of large national parks—VERP is expected to guide general management planning efforts for all park service units in the future. I looked for, but did not find, any mention of benefits based management (BBM), which extends the ROS framework and is currently being piloted by federal agencies such as the Forest Service and BLM, as well as a number of state agencies and city parks departments.

The second chapter is an adequate treatment of identifying and describing the major legislation and policy decisions made related to recreation resource management on public lands. It also adequately captures the essence of those federal agencies primarily responsible for providing recreational opportunities. Much of the information in this chapter comes from the 1987 President's Commission on Americans Outdoors. As such, the information presented is fairly dated.

Chapters 3 through 13 focus on the various public land managing agencies and the lands under their jurisdiction. Specifically, Chapters 3 and 7 outline the primary legislation responsible for creating the national park system and the national forest system, respectively. They also provide information on number and location of national park and forest units, size of units, and recreational visits to selected units.

Chapters 4 through 6 focus exclusively on the national park system. They give detailed, but inconsistent, information about most of the large national parks, some of the smaller parks, and few of the other types of units that make up the national park system. Chapters 8 through 10 cover material related to the national forest system. Chapter 8 provides some discussion, albeit limited, on ROS, the Forest Service recreational planning and management framework. It also provides information on the Forest Service management of aesthetic resources. Unfortunately, the visual management system described is no longer used and was replaced in 1995 with the scenic management system (SMS), which is more in keeping with Forest Service planning and management philosophy as outlined by ROS and BBM. Chapter 9 provides quite a bit of data about Forest Service recreational facilities and use—interesting, but an incomplete treatment. The Forest Service is in the business of providing recreation opportunities, which include activities, the setting, and the user's desired experiences. Focusing solely on facilities and use tells the reader where people go but does nothing to answer the more important questions of why are they going there, what opportunities are being provided, and how successfully managers have provided those opportunities. Chapter 10 purports to be about case studies of the national forest system. As with the case studies of national parks, I thought these case studies were nothing more than descriptions of some national forest system units.

Chapters 11 and 12 give brief overviews and short histories of the U.S. Fish and Wildlife Service and the BLM, respectively. Given the BLM's increasing role as a recreation and tourism provider, I expected more coverage of this agency. Most of the material presented appeared to come from BLM's *Recreation 2000* plan. Chapter 13 provides very brief overviews of other federal agencies or bureaus—U.S. Army Corps of Engineers, Bureau of Reclamation, Tennessee Valley Authority, and Bureau of Indian Affairs—with recreation resource management responsibilities. The last chapter of the book is an odd chapter and seems out of place. For the most part this chapter covers the major legislative and policy decisions made during the 1960s to preserve and protect natural resources for their amenity value. This chapter gives a cursory overview of wilderness, rivers, trails, seashores, and lakeshores. All of these amenity resources are managed by the federal agencies previously discussed. I am not sure why the author chose to pull these particular resource areas out and treat them separately. I think his purpose would have been better served by blending these resources in as appropriate throughout the book.

I found the book to be interesting but difficult to categorize as a book about recreation land policy, planning or management, or a book describing selected federal recreation resources. As such, it was oftentimes difficult to follow or understand. Why were some areas, some concepts, some policies, and so on discussed and others not? The author states that several case

studies are included. But, the material found under headings titled *case studies* is merely description of an area. What was the purpose or intent of these so-called case studies?

The author says the book is a valuable reference book for students as well as tourists. However, there appears to be no process followed for including or not including discussion about specific land management units of any of the federal land managing agencies. Even for those units included, the author's treatment of them is inconsistent within a chapter and inconsistent among chapters addressing different agency units. For instance, for some National Park Service units, the author provides information such as the number of beds, cost of lodging, and cost of meals in and around a particular park, but does not include this type of information for other parks. How and why were specific parks, forests, and other areas chosen for detailed descriptions? Do they represent some hierarchy of public lands? Or, were they chosen because the author has previously visited them?

I found it distracting to read a book about federal lands and be given so many examples of planning and management efforts, facility and use data, and so on about New York state lands. The author is familiar with New York state lands, but the connections are not demonstrated between state and federal lands and the policies and management frameworks relevant to each.

I question the value of this book for tourists. There are no color photographs of any of the areas described, very few black-and-white photos, and no location maps. With respect to the latter, there are several black-and-white maps printed on 8.5 by 11 inch paper found in a pocket inside the back cover of the book. These maps, though, show only the distribution across the USA of national park units, national forests, wild and scenic rivers, and so on. Furthermore, premier natural resource and recreation areas such as the Grand Canyon in Arizona, are not discussed. The Grand Canyon is a world resource, a world tourist attraction, and destination. Yet, any discussion of it is conspicuously missing from a book billed as a tourism reference and guide to federally managed outdoor recreation areas in the USA.

I think the author tried to do too many things with this book. I think the author's purposes would have been better served, had he clearly defined an audience for the book before it was written. There are bits and pieces of the book that would interest a number of different audiences. Unfortunately, it is not clear how or why those bits and pieces were chosen. Potential readers might find themselves with just the reference they are looking for. Or, they might find themselves with 900 pages of nice-to-know information. This book is probably best suited as a reference book in a library or as a supplemental text or suggested reading for a university-level class.—DOROTHY H. ANDERSON, *Department of Forest Resources, University of Minnesota, St. Paul, MN 55108 (danderso@forestry.umn.edu).*◆

Book

Breeding Field Crops, 4th Edition—*John M. Poehlman and David A. Sleper.* Iowa State University Press, 2121 S. State Ave., Ames, IA 50014. 1995. 510 p. Hardcover. $62.95.

This is the 4th edition of the popular introductory plant breeding textbook, *Breeding Field Crops*. This is the only edition of the book not written entirely by John Poehlman. Although written specifically for beginning plant breeding students, it should prove to be a useful reference for graduate students and even seasoned plant breeders. The book provides an introduction to plant breeding, covers the basic principles and *tools of the trade*, and discusses breeding strategies for specific crops. An index and a 300-word glossary are included at the end of the book.

The 20 chapters are divided into 10 sections. Section 1 is an excellent introductory chapter that presents a history and describes the evolvement of plant breeding from an art to a science. Section 2 has chapters on plant reproduction, Mendelian principles, and an overview of quantitative inheritance. Section 3 is entitled "Tools of the Plant Breeder" and has chapters on chromosome variations, mutations, the manipulation of fertility-regulating mechanisms, and a chapter on molecular biology. The molecular biology chapter deals mostly with tissue culture, but transformation and molecular markers are also discussed. There is a section on general methods of plant breeding, one on germplasm resources, and a section that discusses the practical aspects of cultivar production and maintenance. The remaining pages of the book (approximately half) are devoted to breeding strategies for specific crops. The major field crops—wheat, rice, soybeans, corn, sorghum, and cotton—are covered. The vegetatively propagated crops—potato and sugarcane—are covered in separate chapters, and there is a chapter on breeding forage crops.

Although it is 220 pages shorter than the 3rd edition, all of the essentials are included. The organization is slightly different, but there is a lot of similarity to the 3rd edition. Most of the reduction in size is due to changes found in the application sections. All of the chapters dealing with specific crops have been reduced in size. Chapters discussing triticale, barley, oats, millet, and sugarbeets have been dropped. However, a section dealing with vegetatively propagated crops, covering potatoes and sugarcane, was added. Other differences include the exchange of extensive bibliographies in the 3rd edition for some key references, designated *further readings*, and a set of study questions at the end of each chapter in the 4th edition. The more than 270 photographs and line drawings are clearer and sharper than those found in the 3rd edition.

Intended primarily as a textbook for an introductory crop breeding course, this 4th edition provides an excellent blend of theory with practical application.

Dr. John M. Poehlman, Professor Emeritus at the University of Missouri, died on 16 Jan. 1995. He and his contributions will be greatly missed by his colleagues and friends.—JACKIE RUDD, *Plant Science Department, South Dakota State University, Brookings, South Dakota 57007 (ruddj@mg.sdstate.edu).*◆

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For Your Information

1996

American Association of Cereal Chemists annual meeting, 15–19 September, Baltimore, MD (612-454-7250).
American Water Resources Association annual conference and symposium, 22–26 September, Bonaventure Resort, Ft. Lauderdale, FL (703-904-1225).
American Society for Horticultural Science annual meeting, 6–10 October, Lexington, KY (703-836-4606).
National Association of Biology Teachers annual meeting, 16–19 October, Charlotte, NC (800-406-0775).
Geological Society of America annual meeting, 28–31 October, Denver, CO (800- 472-1988 or 303-447-2020).
American Society of Agronomy, Crop Science Society of America, Soil Science Society of America annual meeting, 3–8 November, Indianapolis, IN (608-273- 8080).
Society of American Foresters annual meeting, 9–12 November, Albuquerque, NM (301-897-8720).
American Association for Agricultural Education annual meeting, 6–10 December, Cincinnati, OH (814-863-7852).
Entomological Society of America annual meeting, 8–12 December, Louisville, KY (301-731-4535).

1997

American Meteorological Society annual meeting, 2–7 February, Long Beach, CA (617-227-2425).
Weed Science Society of America annual meeting, 3–6 February, Orlando, FL (Clarion) (217-252-4212).
National Science Teachers Association annual meeting, 3–6 April, New Orleans, LA (703-243-7100).
American Society for Horticultural Science annual meeting, 22–26 July, Salt Lake City, UT (703-836-4606).
Soil and Water Conservation Society annual meeting, 23–26 July, Toronto, ON, Canada (515-289-2331).
American Agricultural Economics Association annual meeting, 27–30 July, Toronto, Canada (Sheraton) (515-233-3202).
American Society of Animal Science annual meeting, 28 July–1 August, Nashville, TN (217-356-3182).
American Society of Plant Physiologists annual meeting, 2–6 August, Vancouver, BC, Canada (301-251-0560).
American Institute of Biological Sciences annual meeting, 3–7 August, Montreal, QC, Canada (202-628-1509).
American Phytopathological Society annual meeting, 9–13 August, Rochester, NY (612-454-7250).
American Society of Agricultural Engineers annual meeting, 10–14 August, Minneapolis, MN (616-429-0300).
Society of American Foresters annual meeting, 4–8 October, Memphis, TN (301-897- 8720).
American Association of Cereal Chemists annual meeting, 12–16 October, San Diego, CA (Convention Center, Marriott) (612-454-7250).
American Society of Agronomy, Crop Science Society of America, Soil Science Society of America annual meeting, 26–31 October, Anaheim, CA (608-273- 8080).
American Association for Agricultural Education annual meeting, 12–16 December, Las Vegas, NV (814-863-7852).
Entomological Society of America annual meeting, 13–18 December, Nashville, TN (301-731-4535).