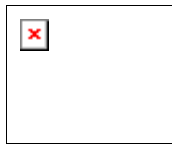


EXTENSION AND EDUCATION MATERIALS

FOR SUSTAINABLE AGRICULTURE: VOLUME 6, CHAPTER X



Future Horizons:

Recent Literature in Sustainable Agriculture

Chapter X Introduction

Many Ways of Learning and Knowing

"Human reason, in one sphere of its cognition, is called upon to consider questions, which it cannot decline, as they are presented by its own nature, but which it cannot answer, as they transcend every faculty of the mind." -- Immanuel Kant, Preface to the First Edition, *Critique of Pure Reason*

The literature on adult education describes many ways by which we perceive the world and the different ways we construct its intricacies and interconnections. In the design of future learning environments, it is important to plan activities that integrate new information with our previous life experiences. Learning style is also important to consider: some of us are visual learners, some tactile; some of us learn from lectures or movies, others from reading, or from tours in the field. Some learn best from history.

One dimension of learning that we consider important involves the critical use of language, and expanding our concept of development to include the qualitative changes needed to achieve a better quality of life. As scientists we are compelled to classify and measure, to put meaning into numbers, and to use them to better understand the human situation. In this context, we present a series of reviews that illustrate multiple ways of knowing. The emerging literature on sustainable development is too voluminous for us to pretend to even sample it adequately. Thus the reviews should be considered as examples of what is currently available.

Sustainable agriculture is a philosophy, goal, and set of practices that is one part of a larger sphere of concern converging around the term *sustainable development*. It could be argued that this notion is an oxymoron, especially if "development" is defined only in terms of growth, a clearly non-sustainable activity in a world of scarcity.

A Sustainable World (1995), edited by Thaddeus Trzyna, brings together perspectives on the meaning of sustainable development and the measures that are employed in assessing progress. In *Envisioning a Sustainable Society* (1989), Lester Milbrath summarizes the values that drive human decisions, and scenarios about ways to emerge from where we are today. Tyler Miller demonstrates the potentials of effective teaching materials in *Living in the Environment* (1996), an exceptionally well written and illustrated textbook that is updated every two years. Miller's book is representative of the new generation of teaching materials available for secondary and college level education: current, relevant, well researched and presented, and accessible at different levels of understanding. A sample of texts from Delmar Publishers, perhaps representative of what is available for high school students, was reviewed for their relevance to sustainability. We found these texts sorely lacking in up-to-date perspective or information that will help students make the connection between agricultural practices and sustainable systems.

Ecological Literacy: Education and the Transition to a Postmodern World (1992) by David Orr explores the crisis of industrial societies, and how their impacts have influenced our biophysical environment. He calls for educational reform, one step toward the transition to sustainability. Orr's philosophy on educational changes is expanded in *Earth in Mind*:

On Education, Environment, and the Human Prospect (1994). He exhorts us to move education to a higher plane, to reduce the time spent on training for positions in today's commercial economy, and to take a longer-term view of human potential and development.

Everyone a Teacher, Everyone a Learner (1995) condenses the educational handbook from North Central Region professional development workshops. According to this theme, all adult learners bring important skills and experiences to each teaching situation. Our challenge as educators is to draw out these potentials to further communication, and to effectively use the multiple ways of knowing that are present in any group. From the 1996 workshops, *Shared Leadership, Shared Responsibility* developed the theme that we all take ownership of the learning process, further expanding our ways of knowing.

In a departure from mainstream science, we review four fiction works that approach ecology, food production, and sustainability from other perspectives. Hank Wesselman's *Spirit Walker* (1995) unfolds a tale set in Hawaii of today and the future. *Woman on the Edge of Time* (1976), a feminist classic by Marge Piercy, also uses time warps to give us a view of present society's dilemmas from the vantage point of the year 2042. Jean Raspail's *The Camp of the Saints* (1973) foresees an invasion of the First World by the Third, a process that is in fact under way today, albeit in a less dramatic fashion. Daniel Quinn's widely acclaimed *Ishmael* (1993) is becoming a popular alternative text in English, environmental science, philosophy, and development studies. In each case, we are drawn to consider today's excesses in the broader spatial context of the globe, and the temporal context of the future. Few people are left unchanged by exposure to these alternative ways of knowing.

We are moved to recount the story of a Native American chief who was called to the witness stand and asked if he would swear to tell the truth, the whole truth, and nothing but the truth (so help you God). He responded "No," and the judge asked why? The chief knew within himself that he was not sure if he could ever know the absolute truth. Further, he was not convinced that anyone could know the whole truth. He said, "I can only tell you what I know." In a quest for some semblance of "truth" we seek many sources, read and digest the works of authors we respect and others we don't, and build from this foundation a better sense of what we know. To this goal we present several different ways of learning, and ultimately ways of knowing how to perceive, to articulate, and to practice sustainability.

Charles Francis and Gabriel Hegyes

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A Sustainable World: Defining and Measuring Sustainable Development

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Thaddeus C. Trzyna, Editor, 1995
IUCN - TheWorld Conserv. Union, Intl. Ctr. for Environ. & Public Policy
Sacramento, CA 95818, 272 p, \$28.00

In the years following the Brundtland report "Our Common Future" (1987) and the Rio conference report "Agenda 21" (1992) the term 'sustainable' has become part of the daily development vocabulary. If anything, the word suffers from overuse and soon loses impact and meaning. Editor Ted Trzyna brings us a series of papers that attempt to help us regain perspective on meanings, on measuring change or progress, and on indicators that are being used to describe development. As chair of the IUCN Commission on Environmental Strategy and Planning and faculty member at the Claremont Graduate School, Trzyna has first hand experience with leaders around the world and has found a general confusion in the interpretation of sustainability. Some claim this approach lacks a concrete body of theory, others that it means all things to all people, and still others that sustainable development is itself an oxymoron. In fourteen chapters, "Sustainable World" attempts to clarify the situation. Although not focused specifically on agriculture, the arguments often describe the long term need for and use of land, natural resources, and capital to produce food for an increasing human population. Thus the book is relevant to our compendium.

According to David Munro, development can be sustainable only if it can continue, or its benefits maintained,

indefinitely. There can be nothing inherent in the process or activity that would limit the time that process can endure. He cites a need for ecological sustainability, in order to provide clean air and water, food and the materials necessary for other human activities. No less important is social sustainability, the "relationship between development and current social norms." And economic sustainability, the relationship between benefits and all costs in the system, including those that often do not enter into the accounting. In contrast, Stephen Viederman argues that sustainability is not a technical problem to be solved, but rather a "vision of the future that provides us with a road map and helps to focus our attention on a set of values and ethical and moral principles by which to guide our actions" both as individuals and as societies. He points out that much of the rhetoric around this topic has been driven by the writings and language of the northern elite, a culture that even in science has tended to undervalue indigenous and experiential knowledge. Viederman concludes that a new paradigm called issue-driven science will stress pragmatism, acceptance of uncertainty as given, focus on data quality rather than completeness, concern for equity and for future generations, and emphasis on processes, dynamics, heterogeneity, and discontinuity. Social issues will become highly relevant, even in the sphere of science.

Denis Goulet attempts to shift our thinking from traditional economic measures to what he calls authentic development, one that includes social equity or access to essential goods for all, the qualitative enrichment of human life, and the growth of public wealth to enhance the common good. He challenges conventional measures of growth, and calls for study of the redistribution of wealth, the meeting of basic human needs, and the building on traditional values. Goulet recognizes economic, social, political, cultural, and ecological components in any in-depth definition or approach to development. The four chapters on definition deal with our struggle to agree on common terms, how to achieve goals, and then how to measure progress.

The next major section has four chapters that explore the measurement process. John O'Connor describes the indicators currently used by the World Bank and by the World Resources Institute in their publications. In a sense, people are looking for indices of progress, a type of report card that could be used to measure whether desirable change is taking place. There are difficulties in finding common units with which to measure change, beyond the commonly accepted monetization of activities. Realizing that progress toward sustainability is complex, there is an effort to develop a sustainability matrix that includes both socioeconomic indicators and environmental components such as state of the ozone layer, biodiversity, natural resources, and human carrying capacity. It is obvious that different indicators deserve different weighting, depending on priorities and urgency of the issue, and these may be country and site specific. A European sustainability index project is described in a chapter by Tjeerd Deelstra, and a matrix of how people relate to the ecosystem and how this relates to strategies for sustainable development is presented in a chapter by Nancy MacPherson. All these measurement techniques are useful in helping us to focus on a wider range of variables and indicators; most of them bring in social and ecological dimensions, a requisite of any rational systems for the future. Their shortcomings are inherent in the complexity of the indicators, lack of agreement on how to quantify them, and inability of many agencies to deal with measurement of anything but the traditional economic factors. Because of the importance of values, opinions, and other conventionally non-qualifiable variables, it will be difficult to arrive at agreement on how to measure sustainable development.

The last six chapters deal with details on sustainability indicators. A major challenge is to improve our understanding of ecosystem functions and how they are influenced by the changes we introduce as we expand human activities. A common mistake in agriculture and forestry has been the estimation, based on empirical research, of the maximum potential productivity of a particular crop or forest product. This misleading approach has rarely considered the importance of ecosystem integrity nor the long-term potential productivity of these same systems. A series of specific examples of indicators used in Latin America, Africa, and the South Pacific provides a range of ideas on how to measure sustainability. The System of National Accounts of the United Nations is an approach that combines conventional indicators of income, production of goods and services, and other economic activity, while ignoring the long-term environmental or social implications of those same activities. More comprehensive measures are needed, and this book points out the needs as well as the shortcomings of current systems. One limitation not discussed is our unceasing quest for generalizable indicators or approaches to solve any dilemma. As we are learning in the study of site specific farming, one solution does not often fit all situations. The importance of location and context specificity is just one of the complexities we will need to deal with as sustainability becomes more a part of the development agenda. This book provides a comprehensive look at our current understanding of how to measure progress in reaching sustainable human systems, and more importantly raises stimulating questions about how we should approach the measurement of complex social and environmental dimensions of development.

Reviewed by:

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Envisioning a Sustainable Society: Learning Our Way Out

Lester W. Milbrath, 1989

State University of New York Press, State University Plaza, Albany, NY 12246. 403 p. \$19.95

In a patient and visionary manner, "Envisioning a Sustainable Society" asks people of our modern civilization to question the premises on which we base our daily lives! This is no small task, but Lester Milbrath carefully lays the jigsaw puzzle pieces on the table and shows why each component cannot contribute to a beautiful product because it has been carelessly created. He teaches that transforming the misshapen pieces into a worthy vision is possible but requires highly conscious decision-making. Although real problems that we face in sustaining ourselves and the earth are acknowledged in the book, the emphasis is on raising our societal awareness to a point where we can actively form our societies to be sustainable.

The author has used this book in manuscript form in a number of upper division college courses which gives it a thorough and purposefully linear approach. One chapter builds on the next, but it hardly resembles a typical textbook. It delves into a variety of disciplines such as economics, sociology, politics, philosophy, science, and technology, while not requiring a sophisticated background in any of them to be readable and thought-provoking. Milbrath hopes to stimulate readers "to see their civilization in a new light and with new lenses. That is the first step in learning our way out." Relevant literature is cited throughout the text.

The book is organized into three parts: a look at our current state of the world and the values and forces that have (or have not) guided us to this point, an exciting exploration of sustainability through actual visions of human activities fitting harmoniously with natural systems; and finally, scenarios on how to make the imperative transition from modern to sustainable society.

In Part I, Milbrath surveys the relatively recent emergence of humans on the planet and our incredible knack for "success." We have been driven to improve our health, food, wealth, and comfort, being so good at it that we are actually pressuring the earth's capacity for the first time. He then goes beyond the obvious physical parameters to explore the values and beliefs that shape our society. Actively analyzing values to provide guidance is imperative, as is recognizing that science is not really an objective process. The author states that "adhering to the myth of a value-free science is one of the most dangerous characteristics of modern thought." It is a helpful tool, but must be thoughtfully managed within the context of society's values. Qualities of a rich and sustainable system are presented through a discussion of a core set of values.

The second section of the book furthers the vision of a sustainable society by designing human systems to merge with natural systems. Important components of this marriage include relating harmoniously with ecosystems, regenerative food production, quality of life and importance of fulfilling work, the role of technology and science, politics and power struggles, and the need for diverse nations to work together. Milbrath proposes adding "a learning structure to governments that would have a Council for Long-Range Societal Guidance as a key new institution." This structure would serve to review the possible impacts of new technologies and policies on society and the environment.

Part III begins with the author's vision of what we might expect "if we continue on our present expansionist path and treat our environmental problems mainly as technical problems." Learning and changing in that kind of serious crisis mode is less productive than would be possible with some planning in place.

The final section calls us to transform a most important relationship, our relationship with nature. Milbrath notes that a society that learns and is able to adapt to change is more likely to withstand pressures over the long haul. "It is paradoxical that the stability of a society may rest on the ease with which it is able to change." He reviews processes and barriers to change, and elucidates our common learning modes for societal learning. While these tools are available, progress might be slow. Meanwhile, the author encourages us to prepare for the inevitable learning cycles with our own self-inventories, and our relationships with nature.

Reviewed by:

Jeana Myers

Land Loss Prevention Project, Partners in Agriculture Project, GA

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Living in the Environment: Principles, Connections, and Solutions, Ninth Edition

G. Tyler Miller, Jr., 1996

Wadsworth Publ. Co., 10 Davis Dr., Belmont, CA 94002, 727 p, cloth \$74.65

Anyone who has not opened a recent college-level text on ecology and natural resources should spend some time grazing through *Living in the Environment!* Many of us are concerned about discipline-specific undergraduate courses, narrow research projects, and lack of integration of scientific principles with practical challenges. In Miller's excellent text, there is more than enough to fill our rumens with more than facts about how functional integration occurs. Here we learn about the process of bringing elements together, the relationships between biology and physical natural resources, and between the ecosystem and human health. If two words were used to describe the approach and the potential consequences, they would be connectedness and sustainability.

Miller's overview includes a catalog of environmental problems and their causes. And the breadth of potential solutions is shown in contrasting essays by Julian Simon (There is No Environmental Crisis) and the Ehrlichs (Simple Simon Environmental Analysis). An essay by Lester Brown chronicles the rise of awareness about environmental issues that is driving our current research and development agenda. Throughout the text, Miller brings in recognized experts and their opinions to supplement the technical treatment of environmental science. Technical principles include systems models, matter and energy, ecosystems, climate, and population ecology, as well as the dynamic relationships among them. Human population growth, biodiversity, global warming, and energy are described in separate sections, along with how they both affect and constrain our quest for a healthy biosphere. Various dimensions of human health, relationships with air and water pollution, and hazardous wastes are discussed. Finally, the impacts of resource use and environmental conservation on food production for humans and for sustaining ecosystems are explored, in biological, economic, and social terms. Alternative future scenarios are presented, along with what is needed to create a sustainable society. To continue the grazing metaphor, we are herded through chapters in a rotational pattern to new concepts and connections, but the fences allow us to keep in view the areas already grazed, and to which we will return.

Just as a grass/legume pasture provides biodiversity, biological complementation, and a more balanced diet to ruminants, Miller's mix of text, graphics, photos, and short guest essays keep our attention through this 727-page text. Appendices include a comprehensive list of publications and organizations working in this area. Mapping concepts (some call these mind maps) are described that help students make connections among key systems elements and elaborate on the most important interactions. Three pages of action steps are provided for those motivated to go beyond an academic course. Further readings, a comprehensive glossary, and useful index complete the treatment. Just as walking through the gate into a fresh pasture creates a degree of excitement, opening this book to any page provides enough forage to draw in the reader.

Lest the instructor be concerned about students only major output being the belching of too much methane or generation of solid waste on a midterm or final exam, Miller provides numerous and viable alternatives. Each chapter concludes

with a series of questions to stimulate critical thinking. These could be used in recitation sections, study circles, or other non-traditional learning environments. Also, specific project ideas are listed for each major chapter topic, another way to stimulate involvement and integration of materials with student's past experience. I would highly recommend this as a text for undergraduates and an accessible reference for advanced high school students or anyone with a prior fundamental understanding of biology. Tyler Miller is a highly prolific writer, with four other textbooks on environment and natural resources, who lives in a school bus that has been converted to an energy efficient house called Eco-Lair in a forest in North Carolina.

Reviewed by:
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Environmental Science for Agriculture And the Life Sciences

William G. Camp and Ray L. Donahue, 1994, cloth \$34.50

Managing Our Natural Resources, Third Edition

William G. Camp and Thomas B. Daugherty, 1997, cloth \$31.75

Wildlife and Natural Resource Management

Kevin H. Deal, 1998, cloth \$29.75

Ecology of Fish and Wildlife

DeVere Burton, 1995, cloth \$29.00

Delmar Publishers, 3 Columbus Circle, Box 15015, Albany, NY 12212-5015

These high school (or perhaps lower division college) texts provide a window on some of the new learning environments that are being created in natural resources, ecology, and environmental science classes. It is evident from the choice and organization of topics that greater emphasis is evolving toward systems approaches, integration of disciplines, and focus on longer-term issues such as sustainability. Agriculture and food production systems are beginning to receive more attention, as the obvious links between management of agroecosystems and the natural environment are brought to the discussion. A brief description of each of these texts describes their treatment of agriculture and attention to sustainability.

Environmental Science for Agriculture and the Life Sciences: This text deals with a range of topics in ecology, resource management, forest and crop production, and environmental problems of human exploitation of the earth's resources. The authors open with a statement of goals for the book, designed to answer 'How the environment works, how we humans relate to it, and what we need to do today and in the future to have a sustainable and livable world order.'

They point out a clear distinction between 'environmentalism' and 'environmental science' -- and clearly identify with the latter. In a later section they urge the reader to distinguish between what is technically accurate (science) and what is morally right (philosophy). In spite of this moralizing, the authors do deal with challenges of the commons, development versus preservation of resources, and ownership of resources. Ecological terms and principles are described, along with various biomes around the globe. In describing farming practices and alternative technologies, there is attention to what

causes groundwater contamination, soil erosion, and salinity, and how we are faced with multiple demands on resources. There is a negative assessment of federal LISA programs (program replaced by SARE several years ago), and a statement that "organic farming systems ... are based on less science, less technology, ... and fewer corporate farms." There is mention of sustainable production, and the need for "responsible environmentalism," but the general tone of the book favors business as usual and downplays the importance of serious dialog about key issues. There is a virtual absence of thinking about the systems nature of food production, and how this can be improved.

Managing Our Natural Resources: With a brief description of what natural resources are, this text provides an overview of conservation and different concepts of management. Similar to the previous book, the authors place importance on carefully defining the difference between environmentalism and science -- it is clear which they consider the more rational. The former is "based on emotion, values, beliefs, and politics" while the latter is independent of the value judgements about good and bad that mark the activist community. There is a major section devoted to erosion (three chapters), and appropriate attention to land-use planning. Water, fisheries, forests, metals and minerals, and wildlife are all considered in terms of their habitat, health, and potential future within the current economic context. Sustained yield is seen as an appropriate goal for design of management strategies. In spite of a generally main stream bias, the authors do mention the "tyranny of geography" that has resulted in very inequitable distribution of fertile land, fresh water, and mineral resources. They also bring up the challenges of private ownership, and talk about the finite resources in a closed ecosystem. But it would be difficult to stimulate a lively discussion showing two sides of very many current environmental issues based on this book.

Wildlife & Natural Resource Management: After an introduction citing the history of wildlife management concerns in the U.S., there are sections on importance and conservation of resources. Chapters deal with habitat for wildlife and how human habitation has impacted wild areas. Others focus on hunting, modern management methods, and endangered species. About two-thirds of the book is dedicated to identification of mammal, bird, reptile, amphibian, and other species. There is a comprehensive index, and logical organization. There is an emphasis on taxonomy of creatures, and little about where they live and how they interact with the environment. Although conservation is mentioned as important, there is little systematic association of the natural world with that of agriculture, nor explanation of how and why human competition for space is closely related to the demise of many species.

Ecology of Fish and Wildlife: After an introduction on ecology, the author embarks on a discussion of the relationships between ecology and agriculture, and clearly identifies the impacts of changes in land use patterns on natural habitat and species diversity and numbers. Biomes of North America and their key wildlife resources are described, and this is followed by sections on the ecology of mammals, birds, and fish, reptiles and amphibians. When the book concludes with chapters on management, there is a clear focus on multiple uses of resources, conservation of soil, water and air quality, and the multiple human needs that are met through wise use of natural resources. Agriculture, medicine, and recreation are given some treatment, along with such topics as "the outdoor sportsman's code of ethics." But as an example, only a single page is dedicated to agriculture, and this to the process of domestication and how we have arrived at some of the principle species that contribute to food supply.

In general, one could work through these texts in a series of high school courses and come out with an appreciation of ecology and the environment. A student would be exposed, at least superficially, to some of the challenges that such issues as overpopulation, inequity of resource distribution, and short-term thinking will pose to long-term availability of natural resources. There is virtually no attention given to long-term economics of resource use, to the critical nature of land use planning at this point in time, and to the interconnectedness of countries and their piece of the environment. An overview of this small sample of textbooks for the high school market leaves one with strong concerns for what is reaching young minds, and with questions about how teachers in today's society can possibly introduce and discuss controversial issues. There is little of the flavor of Worldwatch Institute about resource concerns. When activist organizations are described, it is often in the context of emotionalism, value-laden, or political agendas. We owe the next generation more alternatives, and a broader perspective than what is found in these types of texts.

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Ecological Literacy: Education and the Transition To a Postmodern World

David W. Orr, 1992

State University of New York Press, State University Plaza, Albany, NY 12246

210 p, paper, \$14.95, cloth, \$29.50

A book dealing with education pertinent to environmental problems is timely. A recent national survey of college students conducted by the University of California at Los Angeles reported that the environment is the primary concern of incoming freshmen; many universities have responded to this interest by setting up environmental studies curricula. Yet little attention has been given to how interrelations of agriculture and environmental deterioration should be addressed at the college level. A recent review of the federal Sustainable Agriculture Research and Education program (NRC, 1991) said almost nothing about education. It was not even clear whether the education component of this program refers to farmers, other working adults, or students in Colleges of Agriculture or other university settings.

Ecological Literacy is a wide-ranging collection of essays by an author with considerable experience in environmental education. Orr co-founded the Meadowcreek Project, an innovative non-profit environmental education organization in Fox, Arkansas, and now is Professor of Environmental Studies at Oberlin College.

The book is organized into three sections: The Issue of Sustainability; Education; and What Knowledge? For What Purposes? The first section defines the breadth of the "crisis of sustainability." It reviews criticism of industrialized societies and literature about detrimental human effects on the biophysical environment. The second section explores ramifications of Orr's belief that "educational institutions are potential leverage points for the transition to sustainability" (p. 84). He argues that sustainability requires changes in the content and process of education, and a "recovery of civic competence" (p. 84). One chapter in this section is an exhaustive syllabus of almost every imaginable topic related to living well and responsibly. The third section deals with a few specific "pathologies of knowledge" (p; 156) that arise from misdirected generation of knowledge. The three examples Orr examines are the assumption that we can manage our planet, the failure of social sciences to contribute to understanding and resolving the crisis of sustainability, and a proposal for a high technology perennial-based agricultural system from two U.S. Department of Agriculture researchers (Rogoff and Rawlins, 1987). The final chapter includes several alternative visions of the future of U.S. agriculture that contrast with the proposal Orr trounces.

Ecological Literacy is mainly about problems of modern (or perhaps more precisely, "postmodern") industrialized societies, and how education could contribute to solutions. It is related only peripherally to ecology, as most ecologists would understand the term. Orr's syllabus for ecological literacy includes readings by very few professional ecologists, and "ecological literacy" seems to be a misnomer for the concept he promotes. It has more to do with what Orr wants ecology to be than what it is. For instance: "The form and structure of any conversation with the natural world is that of the discipline of ecology as a restorative process and healing art," (p. 91).

Orr pleads for greater understanding of environmental and political issues, and the interconnections between these topics and technical issues, to produce citizens who take their stewardship responsibilities seriously. He tries to link a staggering array of social problems--from terrorism to anomie--with ecological literacy. These connections are the weakest part of the book; they depend too much on idealism and emotional appeal.

I agree with much of Orr's assessment of what is wrong with modern society, but I am unconvinced that his prescription matches the ailments. To me, the basic question for "ecological literacy" is whether greater awareness of social and environmental problems will lead people to be willing to pay the costs of fixing those problems and to forego the benefits of consumerism. This book is a cornucopia of alternatives that could ameliorate the crisis of sustainability, but the jury is still out on what will induce people to choose these kinds of options. Orr's arguments for a rich experiential humanistic education are persuasive, but I think the likely consequences are overstated. (Orr, too, acknowledges that education is only one of several influences on behavior).

The first section of this book adds little to its overall message. Here Orr details the evils of modern society, but they have already been described by the authors listed in his syllabus. Unfortunately, ideas that were plausible in the original sometimes seem fatuous second-hand, when quoted without explanation. For example, it is unclear what Wendell Berry meant by writing that good solutions generically "have wide margins" and "exist in proof" (p. 62). Likewise, the reader might wonder how to use recommendations such as "design should be co-evolutionary" and "design should follow a sacred ecology" (p. 33, quoted from John and Nancy Todd). Perhaps because Orr is trying to cover too much ground, his analyses sometimes seem simplistically distilled into "good guys" versus bad guys, and his solutions sometimes are superficial. He claims that designers of "resilient systems" follow "old precepts such as: KISS (keep it simple stupid)"; "If it ain't broke, don't fix it"; "You don't put all your eggs in one basket"; and, "If anything can go wrong, it will, so plan accordingly!" (p. 34). No one can argue with common sense; but if such cliches were sufficient to fix the problems we encounter as a society, we wouldn't be in the mess we're in.

Orr's arguments for an education that equips students to solve genuine problems are passionate and pithy, and he often cuts to the quick of what is wrong with our present-day approach to education. He asks important questions, and wrestles with the answers. His writing often is inspired and capable of catalyzing creativity, but it sometimes verges on cheerleading. His indictment of the social sciences is searing, and his defense of strong democracy with active public involvement by informed citizens is eloquent. But what does it mean to "reinvent politics at the ecosystem level" (p. 70)?

I think many college students will be enthusiastic about the kind of curriculum Orr proposes (although probably not the size of his reading list)! The concept of ecological literacy deals with issues that affect their lives and futures, and it goes beyond problems to their possible solutions. Orr wants to nourish the wisdom in students that impels them to plumb the limits of solutions, as they seek appropriate answers to important questions, but these limits are not tested consistently in his book. "Alternative" cant should be scrutinized as diligently as conventional cant, yet only the latter gets drubbed in *Ecological Literacy*.

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Earth In Mind: On Education, Environment, And the Human Prospect

David W. Orr, 1994

Island Press, 1718 Connecticut Ave NW, Suite 300, Washington D.C. 20009

213 p, paper \$16.95, cloth \$29.95

David Orr might be pleased to know that I accidentally dropped my copy of his book in the Niobrara River. And he would be pleased because the crinkled pages and frayed cover prove that I read the book outside, which is where a lot more education should take place if you agree with Orr.

Earth In Mind both logically and emotionally argues the position that organized education as practiced for several hundred years is often destructive to the earth and ultimately to us humans. Students are not taught long-term ethics or

cooperation, not taught that they are indeed dependent upon and responsible for the healthy functioning of the earth and their own societies, not taught how to design livelihoods and societies which respect and even revere the earth, other humans, and other organisms. Instead, students are taught to consume, to compete, and finally, to destroy. "Education has become an adjunct to the commercial economy [it] has lacked the courage to ask itself what kind of world its graduates will inherit and what kind of world they will be prepared to build." Orr challenges us to change our educational systems, our education, and eventually our lives.

The book is composed of a series of essays written over three years. The unifying theme is that "environmental crisis originates with the inability to think about ecological patterns, systems of causation, and the long-term effects of human actions." The educational content and methods that Orr proposes would give students what he terms "ecological design intelligence," or the capacity to understand, respect, and act within the constraints of ecological systems.

In Part I, "The Problem of Education," Orr argues that capital interests and big business have taken over education, perhaps particularly in America, but probably everywhere. Our educational system does not forewarn us of ecological or social problems or even help us to solve them; rather, our education teaches us that we can patch up problems with technological fixes or materialistic economic growth. "Education is no guarantee of decency, prudence, or wisdom." We are educated in facts and progress, but not with values. And so, Orr protests, our current education is flawed, and dangerous. But why should we change?

"First Principles," Part II, is a moving set of essays in which Orr explores values and morals which could lead us to teach and learn ecological design intelligence. Among these is the recognition that humans are human at least in part because we can have the capacity and deliberate will to "nurture and shelter life." Humans are capable of loving places and nature and most of us really long to do so; but all too often we do not know how. Or we are taught not to value life other than our own or perhaps we are even taught not to value our own lives, judging by the fact that our actions regularly destroy the places that we live. Orr argues that education should produce people who are willing and able to put time and effort into creating and maintaining human communities where physical needs are met through industry and agriculture which does value and shelter life.

How can an educator or an administrator turn out students who can do this? In Part III, "Rethinking Education," Orr suggests concrete changes which could be implemented in educational institutions. These changes would encourage students to think about systems; to evaluate, from the perspective of ecological reality, the long-term reasonableness of human actions; to use their incredible human creativity; and to ask critical questions for society.

But Orr's practical suggestions are not easy to implement. Change the standard measures of educational quality to include accounts of how institutions and their graduates affect the biotic world. Get students outside whenever possible, and sometimes when it is not possible. Make students examine their values. Teach economics, for example, in congruence with physics, biology, and chemistry. Create tenure requirements which force people to have the ability to think broadly about how their disciplines benefit the rest of society. Change the very architecture of academic buildings and the use of campus grounds so that academic institutions could be used as teaching tools for ecological awareness. Incorporate agriculture into liberal arts curricula, to bring people back in touch with soil, water, and sunlight on a basic level. Teach students to ask why as well as how. None of these changes, or any others suggested in Part III of *Earth in Mind*, would be easy, particularly because such education would probably not prepare students to succeed in a global marketplace economy.

But the effort might be worth it if through education we could achieve the sort of society which the essays in Part IV, "Destinations," describe: People lovingly and carefully living in places for which they had true affection and with which they had true history. Some characteristics of such desirable communities, in Orr's view, would be "more parks and fewer shopping malls, more readers and fewer television watchers, more teachers and fewer lawyers, more celebrations and less hurry" Orr does not seem to feel the need to prepare students for the global economy; he would really rather have students change the economy altogether. "We have tried utopia and we can no longer afford it."

The "Destinations" essays might sound like simple and annoying nostalgia for a time which probably never did exist except that Orr firmly states that people would have to exercise intention, thought, knowledge, and wisdom all disciplines which require us to know exactly what we are doing and why in order to create and maintain communities like this. Orr says, "This is not a simpleminded return to a mythical past, but a patient and disciplined effort to learn the arts of inhabitation."

Again, Orr's practical suggestions for achieving these Destinations are not easy. He speaks of redefining our economic system to count the true costs of our lives. He suggests, among other things, purposeful regional planning; development projects which render rural communities self-reliant; creating "green" cities; restoring wild place for animals; creating a solar-powered economy. All of this is desirable and probably achievable, but not easy.

David Orr has an enormous, compelling vision. It is no wonder that the details to achieve the vision are not as clearly spelled out as I might have liked; and after all, a clear secondary theme of the book is that people need to think for themselves! I found myself wondering what I would do in my own classroom and in my own house to help myself and others to live more intelligently. I might just take my students on a field trip to the Niobrara River, for starters.

Reviewed by

Victoria Mundy

University of Nebraska, Lincoln, NE (currently Universty of Kentucky, Lexington, KY)

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Everyone a Teacher, Everyone a Learner

Heidi Carter and Chuck Francis, Editors, 1995

**Extension and Education Materials for Sustainable Agriculture, Volume 4.
North Central Sustainable Agriculture Research and Education Program,
Center for Sustainable Agricultural Systems, University of Nebraska-Lincoln
Lincoln, NE 68583-0949. 246 p, paper \$10.00**

If you're the kind of person who needs order-- follows recipes precisely, keeps your shoes in matched pairs, leaves your desktop clear and organized at the end of every work day-- then I'll tell you right off. Don't even open this book.

On the other hand, if you can tolerate-- maybe even enjoy--a little chaos, you'll find plenty of valuable information in *Everyone a Teacher, Everyone a Learner*, a volume of sustainable agriculture literature and training materials collected by the North Central Region SARE Training Program.

Editors Heidi Carter and Charles Francis, of the University of Nebraska, have assembled, as they describe it, "a smorgasbord" of ideas and methods for teaching agricultural professionals about sustainable agriculture. And like every good potluck dinner I've attended, the buffet in *Everyone a Teacher, Everyone a Learner*, offers some pretty unusual combinations.

Here's a sampling of what you'll find in the 246 pages tucked between its bright-green, comb-bound covers: letters of support from the USDA officials, scholarly articles, outlines for problem-solving activities, Extension checklists, and annotated bibliographies.

The voices in this book are diverse. Academic. Practical. Bureaucratic. Boring. Inspiring. And they're all mixed together. For example, just a few pages from a community college tip-sheet offering some all-too obvious "attributes" of adult learners--"they may be easily distracted from study by other adult responsibilities which compete for time." Rural sociologist Cornelia Flora offers a provocative, scholarly discussion of social issues related to agriculture, communities and new technologies:"social capital can be envisioned as one component of our total resource base that includes human, financial, manufactured and environmental capital as well."

The volume shares a title with--and, best as I can tell from its front matter, was evidently compiled for--two 1995 training workshops. And as you leaf through the pages, you get the feeling of those meetings--keynote addresses, concurrent workshops, panel discussions, debate over coffee and donuts during breaks. I'll bet, from the materials in the volume, participants left the training with a fresh perspective and new ideas to try out. That's what conferences and

workshops are for.

I do wish though, that Carter and Francis took their titles as editors a little more seriously--editors do edit, after all. More organization, a more strongly articulated framework for bringing all these ideas together in a single volume would certainly have strengthened the book's usefulness. And yet, it's precisely the unevenness, the unpredictability of the mix that makes this book such a fertile place for sustainable agriculture training ideas.

In the "Editor's introduction"--perhaps "Editors Warning," would have been a more accurate heading--Carter and Francis outline their approach and how they hope people will make use of this collection. I'll let them speak for themselves.

"Everyone a Teacher, Everyone a Learner is a theme that invites participation. The workshop and handbook title conveys the message that every person in an adult learning environment brings a special set of experiences and a certain wisdom to the activities The handbook does not tell you how to set up a training program, nor does it give a narrow recommendation about what methods to use The training needed (for each audience) will be unique in some ways. We look forward to learning about your experiences and invite you to send us examples."

Reviewed by:
Beth Holtzman
University of Vermont, Burlington, VT

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Shared Leadership, Shared Responsibility

Heidi Carter and Chuck Francis, Editors, 1995
Extension and Education Materials for Sustainable Agriculture, Volume 4.
North Central Sustainable Agriculture Research and Education Program,
Center for Sustainable Agricultural Systems, University of Nebraska-Lincoln
Lincoln, NE 68583-0949. 246 p, paper \$10.00

The book "Shared Leadership, Shared Responsibility" is a reference publication containing hard to find information on a number of topics relevant to sustainable agriculture. The purpose of the book is to provide both updates on timely issues such as the implications of the 1996 Farm Bill on sustainable agriculture and process issues such as leadership and holistic management.

The information collected on holistic management, whole farm planning, entrepreneurship and farmer networks are more a sampler than in-depth information. The book's value lies in its use as a reference for the agriculturist's bookshelf on process topics not found in production agriculture publications.

The book provides relevant sources and succinct summaries on concepts that are at the core of social and economic pillars of sustainable agriculture. The book goes beyond its initial purpose of being a resource material for a formal training session because a researcher or educator need not attend the training to use this material. This reviewer has accessed the book a half dozen times since the training in June, 1996.

Reviewed by:
Rich Pirog
Iowa State University, Ames, IA

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Spiritwalker: My Journeys Through The Visionary Gateway

Hank Wesselman, 1995

Bantam Books, 1540 Broadway, New York, NY 10036-4094. 400 p, cloth \$21.95, paper \$13.95

"I am about to tell you a most unusual story, a chronicle of something that happened to me while I was living on the flank of an active volcano on the island of Hawaii." Blending an interesting mix of anthropology, Carlos Castaneda, ecology, shamanism, mysticism, science, futurology, and science fiction, Wesselman weaves an unexpected and yet compelling adventure of the present/future.

Wesselman is an anthropologist. He begins having dreams, of withdrawing from his body, like the mystics of Asia. Through his research Wesselman discovers he is unquestionably leaving his body and penetrating the senses and awareness of some tribal person, Nainoa and he lives 5000 years in the future!

The rest of the book warps between the future and the present--Nainoa in the future, of Hawaiian ancestry who has migrated because of global warming and rising oceans, now living on the Western coast of North American, and Wesselman in the present, trying to understand the images and the ecology he is seeing when he "walks."

Nainoa is a Hawaiian, kahuna mystic. He travels with Wesselman in his consciousness. Nainoa is sent by his tribe to scout and learn about the other side of the mountains, moving away from the wetness of his oceanside home to the dry and secluded interior. We soon discover that this trip will show us what once was the U.S., where no earlier traveler has ever returned. As the story is disclosed to both the reader and Wesselman, we learn about the changes that Nainoa sees on his journey: greenhouse effects, overpopulation, and AIDS apparently combine to end our Western Civilization as we know it.

Nainoa's people, relatives of the Hawaiians, are hunter-gathers, living close to the earth. They have a profound and enduring spirituality with nature. On the trip, Nainoa shows us how he relates to his environment in his everyday life. Further on his journey, he meets another tribal group who also live close to the earth. Nainoa, Wesselman, and the reader join this group and learn how they survive in a drier area, in what must be central Oregon or Washington.

Is this true? Does it matter? Has Wesselman given us a book of fiction or non-fiction? Who objects?

For the reader taken into a stimulating story and on an appealing and creative adventure, a new world is presented. It certainly mirrors aspects of the current and known planet but it glimmers with the unknown and unusual, and therefore, the dangerous. We encounter plants and animals we don't know in this location--iguanas, monkeys, jaguars. Artifacts from the previous civilizations give us only hints at what may have happened--frames and shells of buildings, rubbish of roads overgrown with vegetation. We see, feel, and live in a possible environment of 5000 years into the future.

Wesselman gives us an excellent feeling of the rainforests; and he makes us thirsty in the savannas. He weaves enough of reality into his writing that he takes you into a fantastic constructed reality. Full of notes to people like Joseph Campbell and Shunryu Suzuki, the book is appropriately referenced. In fact, each chapter has its own series of notes and bibliographic materials.

Given all this, *Spiritwalker* makes for interesting reading and allows the reader a very provocative glimpse into an alternate future.

Reviewed by:
Jim King
University of Nebraska, Lincoln, NE

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Woman on the Edge of Time

Marge Piercy, 1976

Alfred A. Knopf, New York (currently Fawcett Book Group, 1997) paper \$12.00

How would our society today be viewed by another culture some 100 years in the future? Marge Piercy takes us on this journey, through the mind of a brilliant but downtrodden woman who is in and out of mental hospitals because of her poverty and hopeless personal life. She visualizes a feasible future, one that works in harmony with the environment rather than opposing it, and meets human needs while not sacrificing other species or the ecosystem. Our current overuse of natural resources, pollution of atmosphere and waters, and excessive consumption is seen in retrospect as highly unsustainable by a people who had identified and overcome these problems. In a utopian and environmentally benign future culture that lives in harmony with other species, carefully controls human population, and is non-extractive in its use of low-tech solutions to meet human needs, the inhabitants of this continent would look back in amazement at the primitive attitudes and unconcerned behaviors of today's society.

Author Piercy is convincing in her portrayal of how difficult it is to be poor, female, Chicana, and suspected of insanity. Consuelo (Connie) Ramos was once a bright, beautiful and successful college woman, but is now ill, maltreated and then deserted by partner and family, and finally suspected of child abuse. In a gripping story of how Connie deals with this impossible situation, the author takes her on a series of time warps into the 21st Century to the egalitarian society of Mattapoisett, a world where people respect each other and have overcome the many ills of today's discriminatory and wasteful cultures. Yet even in this future utopia, their culture is threatened by others on the planet who have taken a different course. Herein lies both a striking contrast and a message for sustainability.

Given the hopeless situation in which we find Connie in the mental hospital, it is not difficult for the reader to imagine her need to escape. The author takes her (and us) to a society where all the ills of her current situation have been resolved. There is a high degree of racial and gender equality and respect. People are respected for who they are, and accepted for what they do. Three parents, plus in fact the whole village, raise each child. Houses are built to last, clothes are worn for decades and shared in the village, recycling is the norm. Everyone gardens and many are closely involved in food preservation and preparation. People are in touch with their natural environment. Despite their dominance of the region, the humans in this society operate in balance with other species. It is difficult to envision a more sustainable alternative. Yet this utopia has its boundaries.

Just as the oppressive real world of the hospital awaits in the reaches of Connie's mind, there are real oppressors beyond the borders of Mattapoisett in the next century. Details of that other culture are left to the reader's imagination, but it is a small leap to recognize its characteristics as those of a culture extrapolated from our own. This dark alternative is a continuing challenge to utopia, one that parallels Connie's return to reality, the present, and the hopelessness in the mental ward.

In this brilliantly conceived and suspensefully written social statement, Marge Piercy goes beyond a predictable litany of what is wrong with current society. Through the device of a time warp, she offers positive and achievable alternatives. Much is left to the reader's imagination, and very likely the meanings will be different for each person who accepts this adventure. Piercy provides us with a "novel" approach to improving major flaws in today's culture, and outlines one creative approach to envisioning a sustainable society for tomorrow.

Reviewed by:
Charles Francis
University of Nebraska, Lincoln, NE

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The Camp of the Saints

Jean Raspail, 1973

Editions Robert Laffont, S.A., Paris The Social Contract Press,
316 ½ East Mitchell St, Suite 4, Petosky, MI 49770 316 p, paper, \$12.95

...aground some fifty yards out, [lay] the incredible fleet from the other side of the globe.... He pressed his eye to the glass, and the first things he saw were arms... those arms raised high in the air, waving and shaking together, all outstretched toward the nearby shore. Scraggy branches, brown and black, quickened by a breath of hope. All bare, those fleshless Gandhi-arms... thirty thousand creatures on a single ship! — THE CAMP OF THE SAINTS

Most Americans are somewhat parochial. When they envision the future, it is mostly from the perspective of their own country. They believe that interactions with the rest of the world, based largely on trade, will be generally positive and supportive of our continued high quality of life. Presumably, the global economy will help the less developed world to raise their living standards, but imbalances in wealth are not an overriding concern.

What Americans don't consider is that the more than four billion residents of the less developed world have their own concepts of beneficial interactions with the West. In *The*

Camp of the Saints, Jean Raspail offers an allegory of the meeting of East and West in which the prime movers are not the suit-wearing, cell phone-wielding brokers of the new global economy, but the poor.

Triggered by famine and broken promises of Western aid, one million of India's poorest commandeered the merchant ships in Calcutta's harbor, and force the fleet to undertake a brutal voyage around Africa, into the Mediterranean and to the shores of southern France. The focus of the book is on the reaction of the Western nations to the threat of this impending "invasion" by a force armed only with their need and their opponents' guilt. And what a pathetic picture of the West does Raspail paint! Wealthy, soft, riven by internal dissention, the nations of Europe are paralyzed. Troops are deployed to the coasts, but many desert. Leftist journalists drive south in their BMWs, exhorting the proletariat to welcome their brothers and overthrow the capitalist rulers. The Pope stresses obligations to the poor. Suggestions to turn back the ships are branded as racist or xenophobic. Most people's response is limited to hoping that the problem goes away.

What makes Raspail's vision so compelling and disturbing is not that mass migrations could happen, but that they are happening. Albanian freighters, decks packed with refugees, cross to Italy despite attempts by the Italian navy to turn them back. Russians and East Europeans move west looking for work while Algeria is known as France's Mexico. One of every five births in Germany is to a Turkish woman. One of every nine Salvadorians lives in the United States.

On the cover of the 1995 reprint of *The Camp of the Saints* is a photo of the freighter Golden Venture aground in New York harbor in 1993. Her cargo included 300 illegal Chinese immigrants. She had sailed further than Raspail's fleet. Illegal immigration to the United States exceeds 300,000 annually, and more than 5 million people reside here illegally. Almost one million people immigrate legally to the United States each year.

The demographic implications of these migrations are sobering. U.S. population will double by the year 2050 to more than half a billion. The ecological, economic, and social impacts will be severe. Meanwhile, world population increases by 90 million per year, 90% of the increase coming in the less developed nations. Pressures to migrate steadily increase.

The denouement to Raspail's story is apocalyptic. The landing of the fleet precipitates wholesale abandonment of southern France, and the eventual acceptance of unlimited immigration by all Western nations. The West capitulates and relinquishes its sovereignty. The colonial era is reversed.

The Camp of the Saints is provocative, stimulating, and leaves no room for complacency. The issues it raises need to be addressed and cannot be ignored. Do we have the guts to deal with questions of carrying capacity, overconsumption, equitable distribution of resources, and national sovereignty? Or are we too soft and decadent to face harsh realities? One thing is certain -- people will tend to migrate from poverty to wealth, and the current differences in wealth are extreme. Just how extreme was unintentionally illustrated by an article about *The Camp of the Saints* in the December 1994 issue of *The Atlantic Monthly*. Interspersed among reports of Third World poverty and degradation are

advertisements for the Acura Legend Sedan LS, cashmere sweaters, Grand Marnier Liqueur, Apple computers, the Lincoln Mark VIII sedan, and Waterman pens. I wonder how many other readers found this juxtaposition both obscene and unsustainable?

*Review by:
Richard Olson
University of Nebraska - Lincoln*

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Ishmael

-
Daniel Quinn, 1993

Bantam Books, 1540 Broadway, New York, NY 10036-4094. paper \$11.95, cloth \$20.00

How is it possible to briefly and adequately review a book whose express purpose is to give new direction to humankind? And if that direction is likely the only one that will allow the human species to survive, the urgency for a reviewer is magnified. The only way to do justice to such a book is to stimulate others to read the story of the Teacher and her only successful pupil.

In the Personals section of a London newspaper is an ad that reads, "TEACHER seeks pupil. Must have an earnest desire to save the world. Apply in person." In answering this ad, a skeptic begins his journey through an extended, telepathic dialog with an extremely intelligent and perceptive gorilla. During this journey he learns a new interpretation of the history of humankind. He learns of the departure of our species from the sustainable hunting and gathering cultures that predominated for three million years, those that Ishmael calls the "Leavers," to a new path that led to settlement and the first agricultural revolution. Thus began the emergence of the dominant "Takers" who viewed the world as a place to control. And in exercising this control, Ishmael observes that people are "captives of a civilizational system that more or less compels you to go on destroying the world in order to live. Many of you ... would be glad to release the world from captivity, ... (but) they're unable to find the bars of the cage." Ishmael is an outcast not because she is not human nor because she is kept in a cage, but undoubtedly because of her unorthodox interpretations of history and pessimistic view of the future of humankind.

Teacher describes the arrogance of the Takers as based on the Judeo-Christian myth of the creation of man, as the apex of evolution the world was made for man, and that humans own the world for their own good. Their goal is to conquer the world, its climate, land, and all other species. Unfortunately, this approach to creating paradise is spoiled by stupidity, greed, destructiveness, and short-sightedness. Some of the consequences of the Taker mentality, according to Ishmael, have been cruelty, mental illness, crime, and drug addiction. He points out that after three million years of relatively balanced coexistence with other species, the Takers in a mere 500 generations have managed to foul their nest, disrupt the balance, and establish a pattern that will lead to their demise.

The culture of Takers rejects the laws that govern all other species. According to the prevailing mythology, humans are by definition a biological exception, and thus can invoke their domination to enforce this uniqueness. Most humans have an unwavering dependence on prophets--Moses, Buddha, Jesus--although they have no certain knowledge about how they ought to live. In fact, their world of thought generally ends at the borders of their particular culture. Humans have not learned that they are an integral part of the community of life, that they are not alone on this planet on which they depend completely.

The Taker culture does three things that are not done by any other species. They exterminate their competitors. Humans also systematically destroy their competitors' food to make way for their own. Finally, they strive to deny competitors access to all food in the world, since they own the supply. In this culture of dominance is embedded the destruction of balance, including the loss of biodiversity and the essence of sustainable biological systems. Are there solutions to this

quandary?

The author provides us with solutions through the Teacher, as she guides the pupil through a unique dialectic trip that leads to realization that things are not as they appear. Of special interest to educators is the metacognition of the learning environment, a process of discovery that is applicable to our university and other adult learning situations. A serious reader must go beyond the delight in a book well conceived and written, and take to heart the message of the Teacher. Early in the book we are challenged with the inquiry on a sign near the cage: "With man gone, will there be hope for gorilla?" We must imagine what is on the reverse of the sign: an obvious truth that is only revealed at the end of the journey.

Reviewed by:
Charles Francis
University of Nebraska, Lincoln, NE

CHAPTER X FOOTNOTES

1. Goebel, Jeff. 1997. Re: Programs with government and nonprofit staff teams? SANET e-mail network, 9 February 1997.
2. From Corporate Watch Homepage: <http://www.corpwatch.org/trac/greenwash/greenwash.html>
3. Lapham, Lewis, H., "*Economic Correctness*", Harper's Magazine, February, 1997
4. "Cleverness has reached its limit. Wisdom is now needed." (p. 270). "The problems of the time call for greater humility and mutual respect." (p. 274)
5. "The wisdom we need will not be found ready-made in any single profession or organization." (p. 274)
6. *Note: Via Walter Prescott Webb, David Orr alludes to a monotonous Texas and our hot, dry plains--but this can be a wonderfully beautiful, interesting and diverse region.

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