

differentiation, morphogenesis, signal transduction, and gene expression. The immense accumulation of data (from biochemical, biological, and genetic studies) regarding the cytoskeleton machinery and cytoskeletal activities prompted the editor to collect together diverse topics, organized into three parts, in the current book *The Plant Cytoskeleton in Cell Differentiation and Development*.

The plant cytoskeleton machinery and key molecules associated with microtubules and actin are described in Part 1. The second part focuses on the functions of the plant cytoskeleton that encompass cell growth and expansion, mitosis, and cytoplasmic streaming, as well as the signal sensory and transduction of the cell wall. The plant cytoskeleton plays central roles in plant growth and development, the effects of cytoskeleton on plant cell morphogenesis, pollen tube germination, trichome development, and signaling in guard cell, and these topics are examined in Part 3.

The editor has done a good job in compiling a book that contains diverse reviews of the plant cytoskeleton. This volume is a must for researchers interested in this topic and will be invaluable to readers from undergraduates to senior investigators. It is recommended for acquisition by university libraries.

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#### SUSTAINABLE SOILS: THE PLACE OF ORGANIC MATTER IN SUSTAINING SOILS AND THEIR PRODUCTIVITY.

*By Benjamin Wolf and George H Snyder. Food Products Press, Binghamton (New York): Haworth Press. \$69.95 (hardcover); \$49.95 (paper). xx + 352 p; ill.; index. ISBN: 1-56022-916-0 (hc); 1-56022-917-9 (pb). 2003.*

Soils are literally and figuratively the foundation of our civilizations, and our future will be strongly influenced by the level of productivity that our soils sustain. The organic matter content of soils is a major factor in determining structure, aeration, and dynamics in water and nutrient supplies. Wolf and Snyder bring together almost a century of experience in management and research to provide a basic introduction to soil science, and detailed information on managing native soil organic matter and on increasing levels of soil organic matter. The authors recommend the book for advanced students in soils, crop production, agronomy, and horticulture; but about one-third of the book is more elementary than this audience might find useful.

Soils with finer textures (more clay and silt) often have more organic matter than coarser

(sandier soils); as far as I know, these authors are the first to assert this pattern results from differences in aeration, with better oxygenation of coarser soils leading to more complete decomposition. They also assert that soil organic matter is accelerated by plowing because of the increase in oxygen levels, and that this loss is greatest in sandy soils (which already had high levels of oxygen). More conventional explanations might include binding of organic molecules onto the surfaces of clay in finer textured soils leading to a physical/chemical stabilization. The book provides a variety of anecdotes about increasing soil organic matter through the use of on-site crops, and with the addition of off-site sources such as animal waste. Some of the case studies will be useful to soil managers, but better introductions to soil science are available.

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#### SOIL FERTILITY DECLINE IN THE TROPICS WITH CASE STUDIES ON PLANTATIONS.

*By Alfred E Hartemink. Wallingford (United Kingdom) and Cambridge (Massachusetts): CABI Publishing. \$120.00. xiii + 360 p; ill.; author and subject indexes. ISBN: 0-85199-670-1. 2003.*

This new book documents long-term soil fertility trends for a range of different plantation systems and fills a gap in the recent literature by providing an overview of soil fertility management and specific challenges for soils in the tropics. Although the title of the book may seem restrictive toward plantations, most of the principles of chemical soil fertility decline discussed are applicable to many land use systems, and provide an update to the limited and mostly outdated books on soils in the tropics. Plantations are rarely the topic of in-depth review, making this book additionally relevant.

Starting with introductory chapters on human population and principles of soil fertility decline, Hartemink looks at annual crops, perennial crops, and forest plantations with specific case studies on sugarcane and sisal, which appear to be mainly the author's research on plantations in Papua New Guinea and Tanzania. The book identifies key messages emergent from existing experimentation such as the greater soil chemical degradation in plantations under annual than perennial crops, the ambiguous nature of some long-term data, and lack of scientific rigor in soil fertility evaluation. Hartemink gives an excellent overview of what we do know and what we do not know and develops well-founded recommendations about improving research procedures. Separating the chapters into

subsections headed by Definition, Assessment, or Summary makes for easy reading. In several cases, however, it is not clear why one section is a Summary, a Conclusion, or a Discussion and Conclusion, and without the continuity of subsections, the main points of a chapter can get easily lost. The many useful considerations about soil fertility dynamics in the tropics and several valuable and previously not widely distributed data sets and the comprehensive data compilations make this volume an interesting supplement to any library on soil management in the tropics.

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FLORA OF NORTH AMERICA: NORTH OF MEXICO. *Volume 4: Magnoliophyta: Caryophyllidae, Part 1.*

*Edited by the Flora of North America Editorial Committee. Oxford and New York: Oxford University Press. \$120.00. xxiv + 559 p + 1 pl; ill.; index. ISBN: 0-19-517389-9. 2003.*

INVASIVE PLANT SPECIES OF THE WORLD: A REFERENCE GUIDE TO ENVIRONMENTAL WEEDS.

*By Ewald Weber. Wallingford (United Kingdom) and Cambridge (Massachusetts): CABI Publishing. \$140.00. vii + 548 p; ill.; no index. ISBN: 0-85199-695-7. 2003.*

Invasive plants have become a growing global issue with the increased rate of introductions reflecting our expanding human networks for transportation. Nonnative or alien species can have a serious negative impact on the diversity of the native fauna and flora and controlling them once established is both costly and difficult to achieve. Reading through the useful introductory pages of this book, prevention rather than cure (or at least early recognition of the problem) would seem to be the message conveyed by the author.

The volume is intended to provide a useful source of information by collating 450 species, which represent many of the significant invasive plant species of the world. The species included are considered invasive in natural areas and not just species that are solely agricultural weeds. Each species is given a concise one-page summary of its major attributes (ecology, distribution, and control method, among others) as well as links to detailed further reading.

Understandably, Weber is not able to include all invasive species and the list will undoubtedly change over time. In addition, not all readers will agree with the selected 450 species included in the book. Many will find species that they personally would not have included or indeed think of species they consider missing. But it is difficult to see how

a more comprehensive and objective list could be compiled. Weber does recognize that any selection is arbitrary to some extent and provides some background behind the rationale used for selecting these species.

The only slight disappointment with the book is that, despite the colorful sleeve, there are no illustrations to aid identification and view the growth habit. This is, however, a minor criticism since the book is likely to provide a good baseline from which databases could potentially develop and help researchers to identify invasive traits and ultimately preempt future possible problems before they occur.

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## ANIMAL SCIENCES

FOR LOVE OF INSECTS.

*By Thomas Eisner; Foreword by Edward O Wilson. Belknap Press. Cambridge (Massachusetts): Harvard University Press. \$29.95. xiv + 448 p; ill.; index. ISBN: 0-674-01181-3. 2003.*

In 1933, a four-year-old boy moved from Berlin to Barcelona, then later on to Uruguay, and finally settling in the United States when he was 18 years old. Along the way, that boy, Thomas Eisner, became fascinated by insects. This fascination has resulted in *For Love of Insects*, a jewel of a book.

In ten wonderfully illustrated chapters, Eisner—a faculty member at Cornell University since 1957—combines biological, ecological, and chemical inquisitiveness to uncover the various strategies used by arthropods to chemically protect themselves, escape predators, and attract mates. Eisner's methodology for his discoveries is quite simple, yet so hard to attain. He compares being able to observe and "eavesdrop" on nature to a pointillist painting, where each observation becomes a dot that might later become part of a larger picture. Eisner observes specific arthropod features and wonders what their function might be, followed by quite reasonable explanations, but with a twist consisting of deeper and unexpected levels of complexity that are usually not evident. Together with his many collaborators, he has unraveled mysteries of the insect world with simple and truly elegant experiments, all of them involving convincing visual evidence in the manner of his totally bewildering photographs.