BOOK REVIEWS

BOOK REVIEW EDITOR, DANIEL F. AUSTIN

Sedges: Uses, Diversity, and Systematics of the Cyperaceae. Naczi, Robert F. C, and Bruce A. Ford, eds. 2008. Monographs in Systematic Botany from the Missouri Botanical Garden, Volume 108. Missouri Botanical Garden Press, P.O. Box 299, St. Louis, MO 63166-0299; <http://www.mbgpress.info>. xii + 298 pp. USD 75.00. ISBN 978-1-930723-72-6.

This fine volume is the outgrowth of the first international conference devoted to the Cyperaceae: "Sedges 2002: International Conference on Uses, Diversity, and Systematics of Cyperaceae," held 6–8 June 2002 on the campus of Delaware State University. There were 90 participants from four continents, 25 of whom are given in the Contributors List at the front of the book. There are 14 separate papers included and there is something for everybody, from the specialist in floristics to the weed scientist to the cladist to the ethnobotanist. It's in the nature of symposium volumes that they are not monographs; the highly varied subject matter invites the reader to pick and choose, as the participants at the conference itself must have done. For the non-specialist, a good place to start is Bryson and Carter on the significance of Cyperaceae as weeds, pp. 15–101. This is the longest of the chapters, and it is replete with cyperaceous anecdotes, such as ". . . in the southern Korean peninsula, *Bolboschoenus maritimus* infests more than 80% of rice fields, reducing yields by as much as 50% when adequate control measures are not taken." Who knew?

A problem with symposium volumes is often that, while the contributions are edited before publication, they are sometimes not peer-reviewed. This creates all manner of problems for department chairpersons, review committees, and deans, at least within the academic world where most of the contributors "reside." Here, special attention was paid to having *all* the papers sent out for peer

review, including the paper by the editors themselves.

For the reader, symposium volumes mostly have a table of contents only, with no index at all. In this volume, the editors have thoughtfully provided an exhaustive taxonomic index, which is precisely what most readers will want. The presentations at the meeting itself did not include "Literature Cited," and one notices that there are a great many references cited post-2002, which indicates that these papers contain far more detail than was given in the conference presentations.

There are no nomenclatural novelties published here, even though the paper on *Pleurostachys* from South America makes reference to five species new to science. The editors conclude their introduction with, "We hope this book will provide an important contribution to our understanding of sedges, as well as a starting point for future studies of one of the world's great plant families." It will indeed.

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Plants of the Montane Forests / Plantas de los bosques montanos, Guatemala. De MacVean, Ana Lucrecia 2009. Herbarium UVAL, Instituto de Research, Universidad del Valle Guatemala, 18 Avenida 11-95 zona 15 Vista Hermosa III, Apartado Postal No. 83, 01901, Guatemala, Guatemala; <http://herbario.uvg.edu.gt/>. 177 pp. (paperback). USD 22.00 (from Missouri Botanical Garden Press), Q 195.00. ISBN 978-99922-2-571-4.

Mountain forests in Central America occur at elevations of 1,000 to 3,000 m above sea level. So far, manuals describing floras of these forests do not exist. Therefore, this short guide, describing and illustrating 152 plant taxa from 78 families, is

quite welcome. Species are grouped mostly according to the color of flower. Within the colors, plants are ordered by growth form (trees, shrubs, herbs, and epiphytes). Palms, ferns, grasses, and bryophytes are not included. Technical terms are explained in the glossary at the end of the book.

There are many original photographs in this book, usually three per species. Most of them are of high quality. Information about plant morphology, possible uses, edibility, or toxicity is provided for all species. All texts are bilingual, English and Spanish. As for names of included taxa and accompanied information, I have only a few minor comments. Closely related species *Ahnus arguta* and *A. jorullensis* (p. 22) are now treated as two subspecies of *A. acuminata*. *Lantana camara* (p. 46) is not native in the US. *Crocasmia* sp. (p. 50) is most likely *C. ×crocasmiflora*. *Robinsonella divergens* (p. 56) should be probably treated as *R. lindeniana* subsp. *divergens*. Pictures of *Lupinus* sp. (p. 74) seem to be *L. polyphyllus*, a species native to western North America. *Jussiaea peruviana* (p. 89) is usually treated as *Ludwigia peruviana*.^{*} The bibliography at the end of the book includes 45 relevant references. For the next edition of this book, three more could be listed (Aguilar 1982, Ames 1985, Parker 2008).

The book provides a wealth of botanical and ethnobotanical information on plants in mountain forests of Guatemala. All botanists, both newcomers and professionals, visiting the Central American mountains will profit from this book. Ana Lucrecia de MacVean, curator of the Herbarium at Universidad del Valle de Guatemala, should be congratulated on this unique publication.

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Ames, O. 1985. Orchids of Guatemala and Belize. Dover Publishers, New York.
Parker, T. 2008. Trees of Guatemala. The Tree Press, Austin, Texas.

^{*}EDITOR'S NOTE: The reviewer is correct that "*Jussiaea peruviana* (p. 89) is usually treated as

Ludwigia peruviana," but the species illustrated is *Ludwigia octovalvis*.

Flora of China. Volume 11. Illustrations Oxalidaceae through Aceraceae. Wu, Zhengyi, P. H. Raven, and Hong, Deyuan, eds. 2009. Science Press, 16 Donghuangchenggen North Street, Beijing 100717, China and Missouri Botanical Garden Press, P. O. Box 299, St. Louis, MO 63166-0299; www.mbgpress.com. xii + 634 pp. (hardcover). USD 140.00. ISBN 978-1-930723-78-8.

Flora of China. Volume 12. Illustrations Hippocastanaceae through Theaceae. Wu, Zhengyi, P. H. Raven, and Hong, Deyuan, eds. 2008. Science Press, 16 Donghuangchenggen North Street, Beijing 100717, China and Missouri Botanical Garden Press, P. O. Box 299, St. Louis, MO 63166-0299; www.mbgpress.com. xii + 475 pp. (hardcover). USD 125.00. ISBN 978-1-930723-79-5.

Flora of China. Volume 13. Illustrations Clusiaceae through Araliaceae. Wu, Zhengyi, P. H. Raven, and Hong, Deyuan, eds. 2008. Science Press, 16 Donghuangchenggen North Street, Beijing 100717, China and Missouri Botanical Garden Press, P. O. Box 299, St. Louis, MO 63166-0299; www.mbgpress.com. xii + 491 pp. (hardcover). USD 125.00. ISBN 978-1-930723-80-1.

Really good line drawings are often extremely useful in plant identification. With too much reduction, and without habit views, they often become a distraction, not an aid—I have in mind the tiny marginal drawings in the 8th edition of Gray's Manual from 1950. Increasingly, flora authors are eschewing illustrations, because of expense and sheer bulk. With the *Flora of China* series, the decision was taken early on to publish illustrations separately, and do it right.

The illustrations are largely those which first appeared in *Flora Reipublicae Popularis Sinicae*, the Chinese-language predecessor to the current series. (Throughout the Illustrations volumes, this is abbreviated as FRPS, and likewise FOC for *Flora of China*.) It must be admitted that they are reproduced with highly variable quality. For example, some of the illustrations of *Tamarix* (vol. 13) are indistinct, the lines lost in repro-

duction. By the same token, the pictures of the species of *Viola* in the same volume are excellent examples of plant portraiture, with most species being given a full-page treatment. This is likewise true for *Begonia* in volume 13.

Because the English-language Text volumes are always published before the Illustrations volumes which are meant to complement them, it follows that there is never a note in the Text volumes as to whether an illustration is to be found. This must have been frustrating for all concerned. In the Illustrations volumes, the invariable pattern of the captions is to cite the full name and author(s) as given in the Text volumes (and sometimes the synonymy as well), give the legends for each numbered element in the picture, and lastly indicate the page in the Text volume, as well as the full reference to FRPS. This reverses the usual pattern of illustrated works, but it was unavoidable. It should be noted that the Text volumes offer only a broad-scale reference to FRPS, whereas the Illustrations volumes have much more finely detailed page citations.

One might suppose that *all* the species in the text volumes are pictured in the Illustrations volumes. But the picture is fuzzy. For example, in Text volume 13, in the treatment of *Eucalyptus*, there are 25 species keyed and described, with another 90 merely listed. None of these are native to China, and apparently none of them escape from cultivation (which seems unlikely). Of these, only 5 are illustrated.

In the case of *Viola*, volume 13, it appears that all the native species are illustrated, but the cultivated ones and the weedy ones are not. However, in volume 11, *Acer negundo*, boxelder, widely cultivated and naturalized in China, is fully illustrated. If there is a pattern, I cannot discern it.

The Illustrations volumes currently available are 4, 5, 6, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 22, and 24. With the addition of Text volume 7, this is a complete listing of all of FOC that has appeared.

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Lives of the Conifers: A Comparative Account of the Coniferous Trees. Powell, Graham R. 2009. The Johns Hopkins University Press, Baltimore; <http://jhupbooks.press.jhu.edu/>.

vii + 276 pages (hardcover). USD 50.00.
ISBN 978-0-801892431.

A more accurate title of this attractive book would be lives of the gymnosperm trees of the Northeastern United States and adjacent Canada. Twelve species, all the indigenous gymnosperm trees of the region, are included. Several of these are of considerable commercial value.

However, the title does accurately describe the presentation—this is a book of comparative morphology, silviculture, and ecology. As a plant morphologist by training, I am struck by the meticulous morphological studies and their presentation; for example, data on the seeds of *P. balsamea*, collected in equivalent positions in the seed-cone zones of five trees showing the plumpest seeds from the middle regions of the cones and aborted seeds at the top and at the bottom. In general botany we tell students about the dimorphic branching of pines with their long shoots and short shoots. This book has several well illustrated examples of the origin of these structures and will be a helpful reference on that topic.

Two chapters deal with the development of the trees with data I have seldom seen—like development of the sapling stage of the tree and differences in crown form. This is clearly explicated with photographs of trees growing under different conditions as well as helpful schematics of short and long shoots and different types of “lateral axes.” Many data on the frequency and abundance of cone and seed production from the author’s own research are included.

Clear close up pictures of the cones at the pollen shedding and female receptive stages are given, fascinating reading for the plant scientist with alluring figures of fluid droplets on the seed cones, with pictures of spruce cones with evident integuments, and the opening of the cones and shedding of seeds for all twelve species.

Appropriately, the final chapter in the book deals with old age and senescence of trees with information I found fascinating, like the relation between height, growth, age, and crown spread.

The appendix contains a unique detailed dichotomous key for the twelve species based on leaf characters, aspects of which I will use in my dendrology classes. This is not the kind of book in which you would expect to find a glossary but I found this useful in interpreting silvicultural terms,

e.g., germinant for first stage of a seedling, syllepsis (the process of lateral shoot production in one surge of growth), and others.

Well edited, well indexed, clearly written, illustrated with 685 color images, this book is a must for anyone dealing with trees of the north-eastern United States and Canada and will be a valuable supplement in forestry and botany courses. It is a wonderful melding of morphology and silviculture infused with the author's enthusiasm for the lore of trees.

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An Orchard Invisible. A Natural History of Seeds. Silvertown, Jonathan, with illustrations by Amy Whitesides. 2009. University of Chicago Press, 1427 East 60th Street, Chicago, IL 60637-2954; www.uchicago.edu. iv + 216 pp. (hardcover). USD 25.00, GBP 17.50. ISBN 978-0-226-75773-5, 0-226-75773-0.

In this book Prof. Silvertown covers almost every topic related to seeds, from evolution to chemistry and human uses. Scientific facts about seed morphology, sexual reproduction, pollination, seed dispersal, and Mendelian inheritance, are mingled elegantly with poems and ink drawings. Along the way, the author goes into attractive details of record sizes of seeds, the supreme flyers, the most poisonous, the most prized, the oiliest, the tastiest, the most nutritious, etc.

Those readers with a good sense of humor will enjoy the stories about Mendel's attempts to embarrass his visitors. People interested in gastronomy will find fascinating recipes, such as the snail porridge or a deadly poisonous vegetarian witches' granola proposed by the author to replace the non-toxic—but scary—formula of witches' brew, included by Shakespeare in *Macbeth*.

Anecdotes about Charles Darwin's grandfather, Abraham Lincoln, and Pliny the Elder, and stories about Markov's assassination, the role of infested seeds on Salem witch trials, the holy decrees of the Russian Orthodox Church, and Sherlock Holmes add interest to the reading of botanical information.

This book is quite easy to read, interesting, and funny. I recommend it to those interested in natural history, biology, and teachers. It is a beautiful addition to your private library.

Silvertown is professor of Ecology at the Open University, Milton Keynes. His research broadly covers plant population biology including population dynamics, life history evolution, evolutionary ecology, and community ecology.

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Aromatic Plants of Ethiopia. Nigist Asfaw and Sebsebe Demissew. 2009. Shama Books, P. O. Box 57, Addis Ababa, Ethiopia; <http://www.shamabooks.com/>. 258 pp. (paperback). USD 20.00. ISBN 978-99944-0-037-9.

In 1992–1993, when Sebsebe and Nigist were studying *Convolvulaceae* in Florida, they introduced me to Ethiopian cuisine. Although my digestive system sometimes rebels at coffee, the preparation that Nigist made with Ethiopian beans freshly roasted and ground immediately before brewing was incredibly good. She also prepared spicy *doro wat* (chicken stew) served with *injera* (from wheat not *teff*). That was also savory. Later, when she was working on her doctorate in Oslo, my wife and I visited her. There she took us to an Ethiopian restaurant run by others from her native country and serving spicy food in an authentic setting; Nigist ate there often and knew all the people in the restaurant.

When she and Sebsebe sent me a copy of their newest book, I immediately thought that readers of *Economic Botany* should know about their research. This text, containing 64 essential oil yielding plants used in Ethiopia, is an excellent addition to their others (numerous publications are cited).

This book begins with a map of the floristic regions of Ethiopia and Eritrea, another of the new regional states and cities, a table of contents, a list of figures, and a list of maps. Next are the Preface, Acknowledgments, and the Introduction. The Introduction contains a resume of the geography, geology, temperature, rainfall, and vegetation types. The vegetation classification is given in more detail, and shown not only on a

map, but also in color photos of the various communities with lists of dominant species and some of the aromatic plants that may be there. This discussion is followed by the species, arranged by family. There are References, a botanical glossary, and index of scientific names, and indices of vernacular names (one by binomial and another in Geez script).

Many of the plants are used worldwide, and they will be familiar by name if not taste. Other genera will be recognized, although the species may not. And then, there are genera in families like the Asteraceae that are unfamiliar. All entries have information that is instructive, including binomial (with etymology of the epithet), synonyms if any, vernacular names in several of the 84 Ethiopian languages, the English common name, a physical description, ecology and distribution, local uses (both in foods and medicines), and the chemical makeup. These are accompanied by Sebsebe's photographs (mostly color) or a line drawing, and a map showing the distribution in the country.

Some of the photographs were printed so small that seeing detail is difficult, but most are fine. This reduction presumably was done to keep the book as small as possible and reduce cost. In spite of that and a few trivial proofing problems, the compilation is a valuable contribution to the foods and medicines of Ethiopia. With this, the flora (Hedberg et al. 1989–2009) may be used with a broader understanding of the estimated 6000–6500 species in the country. I strongly recommend the book.

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Hedberg, Inga, Sue Edwards, Ensermu Kelbessa, Eva Persson, Ib Friis, Mesfin Tadesse, Sileshi Nemomissa & Sebsebe Demissew. 1989–2009. Flora of Ethiopia and Eritrea. Volumes 1–7. The National Herbarium, Addis Ababa University, Addis Ababa and Uppsala University, Uppsala, Sweden.

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African Indigenous Vegetables in Urban Agriculture. Shackleton, Charlie M., Margaret W. Pasquini, and Axel W. Dreschler, eds. 2009. Earthscan, Dunstan House, 14a St. Cross

Street, London EC1N 8XA, United Kingdom and 22883 Quicksilver Drive, Sterling, VA 20166-2012, USA; www.earthscan.co.uk. xxxii + 298 pp. (paperback). GBP 24.95. ISBN 978-1-84407-715-1.

This new volume uniquely explores the relevance of indigenous vegetables (defined to include historically introduced plants of cultural importance, such as sweet potato and pumpkin) to urban African agriculture. It is well known that urban and peri-urban agriculture plays a vital role in supplying fruits and vegetables to city-dwellers in developing nations. At the extreme, as cited here, 90% of the vegetables sold in Accra and Dar es Salaam are from urban cultivation. Nevertheless, as the book observes at several points, urban planners are often uninterested in agriculture or actively hostile to it, seeing it as backwards or a health hazard. One of the authors' stated purposes is therefore to inform and influence policy: if adequate nutrition for city-dwellers depends upon local cultivation, accommodation for that practice must be made.

Existing anthropological and ethnobotanical research on urban African agriculture, and especially the cultivation of indigenous vegetables, is admirably summarized. More than one chapter makes it clear that generalizations will be faulty: farmers' demographic characteristics, legal status, and preferred practices vary greatly according to local circumstances. Plant species used and methods of consumption are also culturally influenced, as one would expect; for example, the use of sweet potato and pumpkin leaves, almost unknown in the U.S., is apparently common in Africa. Basic ethnobotanical information on some important indigenous vegetables is provided in one chapter, and available nutritional data are summarized in another. Interestingly, some indigenous vegetables are far more nutritious than any available exotic vegetables, possibly because they have not been intensively bred for rapid size increase.

The biodiversity chapter also makes a point of summarizing the all-too-numerous remaining research gaps; for example, most African countries do not have good inventories of their indigenous cultivated and wild vegetables. Likewise, Oluoch et al.'s chapter on production and harvesting systems presents several examples of experiments on production techniques for individual species in Arusha, Tanzania, that might well inspire similar

research elsewhere. Finally, the summary that deals with policy lessons includes lists of critical points of knowledge divided into “what we know,” “what we think we know,” and “what we do not know,” again providing the underworked ethnobotanist (if there is such a creature) with a handy list of topics that might merit further study.

The twenty-one contributors to this book represent a broad variety of institutions, mostly African, and fields ranging from ethnobotany and horticulture to nutrition, economics, sociology, and soil science. This diverse expertise has allowed authoritative presentation of many different facets of the subject. In short, the volume is both informative and inspiring; it is highly recommended for those interested in sustainable agriculture (on any continent) or African ethnobotany.

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Fair Bananas! Farmers, Workers, and Consumers Strive to Change an Industry. Frundt, Henry J. 2009. University of Arizona Press, 355 Euclid Ave., Suite 103, Tucson, AZ 85719; www.uapress.arizona.edu. xx + 275 pp. (paperback). USD 65.00. ISBN 978-0-8165-2836-3.

This book addresses issues in international banana production and trade of increasing concern among First World consumers in North America and Europe, providing detailed discussion of the complexities entailed in the struggle for fair production. Spreading from handicrafts to food-stuffs including coffee, cacao and more recently bananas, Fair Trade is part of a wider social movement in which growing numbers of consumers want to know about the environmental and socio-political conditions under which commodities are produced.

Frundt's demonstration of the extent to which most export banana production falls short of the expectations of these newly critical consumers is detailed and vivid, but not new. The strength of the book is his clear account of competing and sometimes contradictory notions of fairness among small-holders and plantation workers, and of the dilemmas of organization, scale and market power in which they are enmeshed.

The central argument is that the production of export bananas under conditions that provide a fair return for labor, decent working conditions, and environmentally responsible agronomic practices is achievable, entailing a consensus about principles among small-scale farmers, plantation workers, union leaders and other activists, and the effective communication of these to consumers. The book shifts between discussion of general issues and the perspectives of a cast of characters exemplifying different points of view. Material on union struggles against transnational corporations and on the intricate politics of labelling codes is particularly informative.

Given the overwhelming dominance of the few transnational corporations that deliver cheap fruit, meeting and simultaneously reinforcing consumers' expectations of what a banana should be, it is almost impossible to open a niche for anything that deviates. Consumers buy coffee and chocolate in packages, emblazoned with carefully targeted messages. But bananas come in their skins, which most in the First World expect to be yellow and unblemished. Although creative possibilities are fully exploited in the fight to establish differentiated brand recognition, clean, green, and socially responsible, so far there is little room for genuine product diversity and much for misinformation.

The modern Cavendish banana, foisted on consumers by entrepreneurial agribusiness mostly in the New World, is a major source of unfairness not directly addressed in this book. Problems caused by lack of genetic diversity are exacerbated by monocropping. Even if independent exporters want to diversify, they are forced into conformity by regulations or market forces. Although export-standard Cavendish bananas constitute a small proportion of world banana production, this imposes overwhelmingly greater social and environmental costs. Expansion of such production threatens the thousands of local banana landraces—grown without expensive and damaging inputs—that support the food security of millions in the Third World.

Perhaps when more First World consumers become aware of this, we might have access to better and fairer bananas.

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Chicle. The Chewing Gum of the Americas, From the Ancient Maya to William Wrigley.

Mathews, Jennifer P. and Gillian P. Schults. 2009. University of Arizona Press, 355 S. Euclid Avenue, Suite 103, Tucson, AZ; www.uapress.arizona.edu. xvi + 143 pp. (paperback). USD 22.95. ISBN 978-0-8165-2821-9.

For the millions of gum chewers in the world, Jennifer Mathews' telling of chicle's history is an interesting and insightful read. Although a Maya archaeologist by training, Mathews embarked upon a decade long study of the chicle latex produced by the sapodilla tree *Manilkara zapota* after stumbling upon a section of chicle railroad in Quintana Roo, Mexico. Her research encompassed the historical, anthropological, archaeological, and botanical literature along with ethnographic interviews with contemporary latex extractors known as *chicleros*. The resulting book is an overview of the history of chicle chewing by the Maya and Aztecs and the emergence of the chewing gum industry in the Americas following the introduction of the chewy chicle latex to North America by Mexico's deposed president Antonio López de Santa Anna.

At only 92 pages (4 chapters) long, this history is somewhat concise. But even though the book is short in length, Mathews wide ranging interdisciplinary research has compiled an abundance of fascinating chewing gum stories. Each time I chew gum outside the privacy of the my own home I can't help smiling at the thought that in Aztec society to do so would have marked me out as a "sodomite" or "effeminate"—for the public chewing of chicle was the mark of the "harlot, the carnal woman." Similarly, I marvel at the paths of history when Mathew's suggests the popularity of chewing gum in the United States is founded on the Native American custom for chewing gum from spruce trees (*Picea* spp.). Indeed, the same goes for William Wrigley's marketing strategy of posting chewing gum samples to the 1.5 million people in the 1915 version of the United States phone directory.

Yet, despite the interesting tidbits, there are a few areas where this book falls a little short of expectations. While the concise nature of the text may be good for the general reader, to the academic audience it might feel a little lightweight. Certainly, much more could have been made of original sources in order to introduce a more detailed and nuanced history. The chapter on the history of the chewing gum industry needs

more first-hand accounts of the rise of chewing gum manufacturing, as well as historical insights from those chew happy customers that fuelled the boom. More importantly perhaps, in the final chapter, the author's original ethnographic work with the *chicleros* should have been given far greater prominence. It is a shame that a slightly reductive and fast paced summarizing is preferred to an in depth exploration of the first hand experience of chicle extraction as well as the *chicleros* fine understanding and uses of other plants within the *Manilkara* forests.

Although the dry and concise style does not quite convey the sense of a spellbinding history, as it stands, this is a worthwhile text which is a solid introduction to the history of chicle use and the impact of traditional plant uses on global society.

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Plant Resources of Tropical Africa 7(1). Timbers

1. Louppe, D., A. A. Oteng-Amoako, and M. Brink, eds. 2008. PROTA Foundation, P.O. Box 341, 6700 AH, Wageningen, Netherlands; <http://www.prota.org>. 704 pp. (paperback). EUR 50.00 (industrialized countries), EUR 25.00 (developing countries); also French volume at same prices. 978-90-5782-210-0 (book + CD ROM), 978-90-5782-209-4 (book only).

This is the first of two volumes that PROTA will publish on timber species of Africa belonging to the 25 most important timber plant families. Some of the species are extensively marketed internationally; others are only used locally for construction or the production of furniture, implements, and utensils. Bamboos, often used for construction, are also included. As in most plants with traditional uses, the timber species presented here also and often have a number of secondary uses. PROTA assigns a primary use category to the species under review, but also lists the secondary uses. When the most important primary use is not clear, the species is handled in another volume; examples are: *Ceiba pentandra* which appears here, but also in fiber volume 16; *Pterocarpus angolensis* was treated in the dyes and tannins volume.

This volume carries 511 species, showing the rich potential of timber species from Africa. However,

113 important species are dealt with extensively (including distribution maps); 167 are treated in a simplified format, whereas 231 are only mentioned in accounts of related species.

The presentation format is the same as previously used in the other volumes. Species are presented alphabetically, and information is provided on botany (description, growth and development, ecology, etc.), scientific and vernacular names, origin and geographic distribution, uses, production and international trade, adulterations and substitutes, and the agronomy of the species. It's a pity there are no more line drawings provided with the species presentation, but overall this is a top class work. Each species profile is written by one or a few authors who bring together formal and grey literature. Especially the latter source is instructive because it is basically untapped by other publications. It is, however, up to the authors to evaluate and validate this "informal" information, and present a balanced review. This being said, the data in this volume highlights a number of lesser known species, and is a rich source of information for anyone working on the interface between ethnobotany and domestication.

Experience has shown that most information "you always wanted to know, but never were able to ... find yourself," can be found in the respective monograph, or could be found from the literature lists that are each time provided.

The diskette that comes with the book has the important species presented together with the illustrations that should help in identification, but also highlight the major characteristics of the species. This being a timber volume, illustrations also focus on wood properties. However, and as with previous editions the CD-ROM still does not function well: testing it on 3 different computers (with 2 different operating programs) only one yielded satisfactory results. The CD (when functioning) comes in 2 languages, i.e., French and English. For future volumes, I would suggest the authors try to "revamp" the CD-ROM's presentation and operational format; there are easier accessing methods on the market. All in all, however, and as we appreciate the content value over presentation flaws, this PROTA volume is a must read/buy!

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The Global Migrations of Ornamental Plants: How the World got into your Garden.

Taylor, Judith M. 2009. Missouri Botanical Garden Press, P.O. Box 299, St. Louis, MO 63166-0299; <http://www.mbgpress.info/>. xiv + 312 pp. (hardcover). USD 40.00. ISBN 978-1-930723-69-6.

This short book is an accessible and entertaining history of ornamental plants. Taylor describes the growth of plant exploration in three phases: the initial interest in economically beneficial plants, the scientific interest for purely botanical reasons, and finally the interest in their aesthetic beauty for horticultural use. Taylor illustrates this evolution with the fitting statement: "In spite of the four-square, business-like approach to managing these gardens, science and beauty crept in like water between the cracks" (p. 5).

The book begins prior to 1500 BCE with the Egyptian Queen Hatshepsut sending collectors to Somalia for frankincense (p.8) and ends in the modern day with a discussion of current plant exploration policies.

Taylor's background as a physician is reflected in her description of the many early ethnobotanists. Her profound interest in the overlap between physician and botanist is apparent throughout the book.* She discusses the role of botanic immersion in medical training of the sixteenth century (p. 45) and supports her statement with a myriad of examples of physician-botanists, including Pierre Belon (p. 40), Garcia de Orta (p.42), and Francisco Hernández (p. 171).

There are seven graphs depicting flora colonization and the direction of plant trade between the different continents, along with 45 color images of early botanists, herbarium specimens, drawings, and paintings inspired by early botanical explorations and collections. Also included are five extensive appendixes including a list of taxonomic names mentioned throughout the text and lists of the composition of gardens and imports in England and North America.

Taylor relates some of the more remarkable stories in horticulture history: The "obsessional and compulsive nature of plant fanciers" (p. 150) and their manic affinity for tulips, roses, and orchids, the story of Charles Darwin being pressured to publish his piece on evolution by Alfred Russel Wallace for fear of "loss of priority" (pp. 176-177), and the history of why the

spinach we now eat (*Spinacia oleracea*) is descended from Chinese varieties (p. 197).

Taylor truly shines in her description of the explorers. The passion and drive of the individuals involved in plant migration are fascinating and sure to entice the reader. With hundreds of plant explorers mentioned, the 312-page format doesn't allow for an in-depth description of any one individual. The reader flounders when an interesting story is suddenly dropped and another begun. These brief histories may whet the palate and stimulate interest in a particular exploration, but the lack of a fulfilling resolution to any of them is the book's only flaw.

Taylor concludes that the increasing uniformity and homogeneity of world gardens and plants is due to their being treated as commodities. In spite of this, her overall impression of plant migration is positive. Because of the availability of even exotic plants, gardens have become accessible to all who appreciate them, something the author supports wholeheartedly in this introduction to the global migration of plants.

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***EDITOR'S NOTE:** The link between botanical training and physicians did not end in the sixteenth century. For example, Victor Mühlenbach was active between the 1950s and 1980s at the Missouri Botanical Garden (cf. Hoch 1986. *Taxon* 35(3):643–644 for obituary). He was an M.D. with a passion for not just medicinal but adventive plants. Moreover, when I gave a lecture in Florida in the 1990s one of the audience members, in his 80s at the time, came up to lament the passing of his previous use of botanicals as a pharmacist.

Plant Genotyping II: SNP Technology Henry, Robert J., ed. 2008. CABI North American Office, 875 Massachusetts Ave., 7th Floor, Cambridge, MA 02139; www.cabi.org. x + 285 pp. (hardcover). USD 130.00, EUR 65.00. ISBN 978-1-84593-382-1.

The objective of this opportune book is to provide its readers with new information regarding the recent progress made in plant genomics. It seeks to review processes and techniques, and focuses on the importance of single nucleotide polymorphism

(SNPs) as integral to advancements in genomics in general, and specifically in plants. I think the authors and the editor of this book accomplished their task.

This is a well written book and the topic is timely. An introductory chapter provides a clear description of SNPs and places it in a historical context as new information for plants and technical developments become available in the genome era. SNP development in plants versus that in animals is also described. There have been more rapid developments of SNP genotyping in animal systems and concurrent association studies, especially disease association with SNPs in human genomics. This introductory chapter is therefore well written and suitable. The various authors make a clear distinction between discovery, detection, and validation, which are all important steps in the process. Methods used in discovery of new SNP as well as the techniques used to find SNPs in plant genomes are well outlined. It was especially noted that the authors choose to mention new techniques such as pyrosequencing and MassARRAY and their use in not only finding SNPs, but also in SNP genotype analysis. Moreover as the book develops the authors sought to include information on specific crop types such as wheat and maize and some of the challenges in finding SNPs in polyploidy systems. It provides information on both high throughput as well as low cost methods for SNP development and analysis. Authors also sought to provide information on the different uses of SNPs in plant genomics.

Layout and progression of the book from general descriptions to specific applications is commendable and I believe a significant strength of the publication. The authors however did not include any information on tropical crops or important fruit crops in treating specific crop types. For agricultural scientists, crop specialist, or plant pathologists this may be seen as an oversight. I believe this can be addressed in future versions.

I recommend this book for any biologist trying to understand the use of SNPs and their importance in phenotype association studies in plants and plant diseases. I also consider this essential reading for students in introductory bioinformatics courses.

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Handbook of Processes and Modeling in the Soil-Plant System. Benbi, D. K., & Rolf Nieder, eds. 2003. Food Products Press, an imprint of The Haworth Press, Inc., 10 Alice Street, Binghamton, NY 13904-1580; <http://www.crcpress.com>. xxii + 762 pp. (paperback). USD 154.95. ISBN 978-1-56022-914-8.

In a first reaction I thought this work was another textbook among the many existing ones. Among my personal textbooks on plant and soil topics, I found texts on soil chemistry, properties of soil, soil microbial ecology, plant physiology, and ecology, and not to forget the "Principles of Plant Nutrition" by Mengel and Kirkby (1982). So what more could this book add to my personal library?

Reviewing this work, the handbook can indeed easily fit in context among the others. The papers of the many authors that contribute to this book clearly fill the gap between soil chemistry and plant nutrition. Aspects of soil physics are briefly highlighted but do not overload with vast information.

In more than 20 chapters the authors consider aspects of soil-water dynamics, soil organic matter and humus, radionuclides, alkalization, erosion, dynamics of primary nutrients like N, P, and K, secondary nutrients like S and Ca, minor elements and heavy metals. In one phrase: it is a complete textbook

I appreciated the numeric data given; it is useful to evaluate topics in daily agricultural use. It is this aspect that makes the book so valuable: plant-soil relations are shown to their best advantage.

In almost every contribution there was a willingness to formalize some processes by formulas or algorithms, so the fundamentals for further modeling are laid. I consider this textbook as a good standard reference work for students, teachers but even for the agricultural or horticultural engineer in their daily practice to develop plant-soil systems.

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Literature Cited

Mengel, K. and E. A. Kirkby. 1982. Principles of Plant Nutrition. International Potash Institute, Bern, Switzerland.

Human Health and Forests: A Global Overview of Issues, Practice and Policy. Colfer, Carol J. Pierce, ed. 2008. Earthscan, 8-12 Camden High Street, London, NW1 OJH, UK; <http://www.earthscan.co.uk/>. xxii + 374 pp. (hardcover). USD 127.00, GBP 65.00. ISBN 978-1-84407-532-4.

Human Health and Forests represents an ambitious effort to shed some multidisciplinary light on an issue of significant human-environmental importance. Written by an eclectic mix of ethno-ecologists, botanists, physicians, anthropologists, virologists, and many others, this collection synthesizes what is known, and what needs to be known, about the linkages between tropical forest ecology, culture, health, and policy.

The volume includes 17 contributions, many of them reviews, divided among three general sections. The first section includes several chapters of particular interest to our readers. The chapter "Human Health and Forests" provides a useful overview of diseases that are endemic to or at least closely connected to tropical forest ecosystems. It includes an interesting introduction to the concepts of disease mediation by either leaving ecosystems intact (e.g., forest preservation), or conversely by dramatically modifying them (e.g., draining wetlands). "Health, Habitats and Medicinal Plant Use" is a comprehensive presentation of the obvious and not-so-obvious dimensions of tropical medicinal plants and health. Noting the paltry numbers of physicians working in rural forested landscapes, the authors underscore the critical importance of traditional birth attendants and healers in maintaining the physical and mental health of communities. They consider not only the efficacy of traditional herbal preparations, but also the therapeutic and ritual value of forests in the health and healing process. The chapter also notes the challenges associated with cultivating medicinal species. Whereas 10% to 25% of China's medicinal taxa are cultivated, barely 1% of the estimated 52,000 medicinal species worldwide are cultivated. In "The Nutritional Role of Forest Plant Foods," the authors review the significance of wild forest foods to tropical communities especially during periods of food shortages. In addition to needed calories, wild foods furnish an array of important vitamins, minerals, and phytochemicals that are often lacking in starchy staples. Simplification of forest people's diets, resulting from introduction of lower-nutritional value exotics, deforestation, and eroding

ethnobotanical knowledge, all threaten the health of forest people.

The complex connectedness of tropical forests and human health is demonstrated by the chapter "Bat-Borne Viral Diseases." Bats retain deep symbolic significance among many forest communities, past and present, and the value of their ecological services in terms of pollination and seed dispersal are well documented. But they are also hosts and vectors for an array of endoparasites and viruses, many of which represent a danger to humans. In addition to the well known examples of pulmonary infection by bat-transmitted soil fungus and rabies, bats are strongly implicated in emerging diseases, such as SARS. In this case, the virus likely jumped to humans from domesticated civet cats in south China, which were in turn originally infected by bats. Then humans, "by their travel behavior, 'extracted' the virus from the forest and disseminated it at the global level." (p. 172). The case for bat transmission of Ebola fever and Nipah encephalitis is emerging as well. In the case of Nipah, which appeared in 1998 in Malaysia and Singapore, it is hypothesized that the 1997–98 El Niño and associated drought and fires in SE Asia limited tree fruiting in the rainforests, which drove fruit bats into agricultural areas, leading to spread of the disease to humans, pigs, and other domesticated animals.

There was not much effort at making this work aesthetically appealing; the tables are numerous, the photos are limited, and the maps are primitive. And at USD 127.00, this volume will not find its way into the hands of many. Nevertheless, the writing is sufficiently non-technical that undergraduate students should have little difficulty grasping the content, and economic botanists and ethnobotanists will find much of value in *Human Health and Forests*.

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A Zapotec Natural History. Trees, Herbs, and Flowers, Birds, Beasts, and Bugs in the Life of the San Juan Gbëë. Hunn, Eugene S. 2008. University of Arizona Press, 355 S. Euclid Ave., Suite 103, Tucson, AZ 85719; www.uapress.arizona.edu. xviii + 262 pp. (hardcover). USD 50.00. ISBN 978-0-8165-2617-8.

This book describes Eugene Hunn's research into "the cultural roles of plants in the daily lives of the people" in a Zapotec village in the state of Oaxaca in southern Mexico. It is based on twelve years of research there. A particular focus is on Zapotec names of plants and animals. This is an anthropological treatise about plant use as revealed by a limited number of informants, most of whom are children. The primary informant is a child named Marielena, who was ten years old when Hunn began his research in San Juan Gbëë.

The work is presented in two parts. There is the printed book format that includes the introduction, chapters describing the landscape and social setting, Zapotec names for plants, the *milpa* system, medicinal, aesthetic, and ritual plant uses, along with a chapter on children's knowledge of plants and their natural surroundings. The second part is a CD-ROM that includes inventories of plants and animals, indices, and a catalogue of over 1,200 digital images of plants, people, and the region.

The most interesting part of this book for me was Hunn's discussion of ethnobiology methods and perspective on the evolution of the field from the context of anthropological theory. The book contains a wealth of information that will be of interest to Zapotec scholars and specialists. However, it is unlikely to have a broad appeal because the poor organization and labeling of the CD-ROM makes it extremely unwieldy and difficult, if not impossible, to use. Most people simply will not expend the time and effort required to search such an extensive database and create an internal tracking system to make the information recurrently accessible. It is an interesting concept to combine book format with CD-ROM that is increasingly popular in our digital age. But I found it incredibly frustrating trying to work between the two formats and not being able to cross-link them and find the CD-ROM image that coincides with the book description. This is unfortunate because much of Hunn's outstanding research that could be of value to botanists and other scientists is contained in the CD-ROM.*

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***EDITOR'S NOTE:** Hunn has an evolving website with the same information on the CD-ROM in

the book. He constantly updates and corrects the information on the website to make it more valuable.

Mobility and Migration in Indigenous Amazonia. Contemporary Ethnoecological Perspectives. Alexiades, Miguel N., ed. 2009. Berghahn Books, 150 Broadway, Suite 812, New York, NY 10038; www.berghahnbooks.com. xviii + 310 pp. (hardcover). USD 90.00. ISBN 978-1-84545-563-7.

This excellent collection of academic essays probes the depth of mobility and change within Indigenous Amazonia. Contributions by established and emerging scholars draw upon a wide range of traditions and academic disciplines—including historical ecology, social anthropology, geography, and ethnobotany—in explorations of the relationship between social change and ethnoecology in the Amazon and Orinoco river basins of South America.

The book is divided into two sections, with the first focusing on the links between mobility and environmental perceptions, knowledge, and resource management. Diverse chapters deal with topics including the history of migration and social movement in Amazonia (including those brought about by colonialization), indigenous geographies and the continued (re)creation of social territories, and the implications of individual and community motility for community conservation initiatives in Peru.

The stand-out chapter is Laura Rival's investigation of the Huaorani ways of knowing and naming plant species. Rival's insightful contribution shifts the focus away from assessing Indigenous plant knowledge based upon typical classifications and nomenclature (a mirror of Linnaean taxonomy) toward an understanding of the importance of context and relationship in Indigenous plant classifications. Rival also makes clear that the Huaorani plant knowledge is far greater than their classifications suggest. Aspects of plant life such as phenology and interspecies interactions are intimately known, which to a large extent is generated by personal experiences from trekking in the forest.

The second section explores how the movements of people, plants, and knowledge have transformed ethnoecologies in Amazonia. Chapters on the history of plant domestication and medicinal plant use, political and historical ecologies of the Piara

and Lecos peoples, and the transformation of basketry skills following community movement, all highlight the highly dynamic nature of culture and environment in Amazonia and the great extent to which they interact to create and continually recreate cultural knowledge, practice, and place. A particularly powerful argument for the dynamism of ethnoecological knowledge is Robert Voeks' chapter on the acquisition and re-construction of the ethnobotany of African diaspora communities in South America.

This volume is an important contribution to Indigenous ethnoecological research both within Amazonia and beyond, for it strongly refutes the understanding that Indigenous knowledge and cultures are static and unchanging. Historically, the association of Indigenous cultures with stasis has fostered a binary understanding of Indigenous life either as a pristine and historical relic doomed to extinction, or as a corrupt shadow of former times. This engaging work forces a re-appraisal of such perceptions of Indigenous identity, through uncovering repeated movement, change, adaptation, and ethnoecological genesis amongst the peoples and environments of lowland Amazonia.*

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***EDITOR'S NOTE:** For the same message of continual change and adaptation in the North American southwestern, see: Sheridan, T. E., & Parezo, N. J., eds. 1996. *Paths of Life. American Indians of the Southwest and Northern Mexico*. University of Arizona Press, Tucson.

The Amazonian Caboclo and the Açaí Palm. Forest Farmers in the Global Market.

Brondízio, E. S. 2008. The New York Botanical Garden Press, 200th Street and Kazimiroff Blvd., Bronx, NY 10458-5126; http://www.nybg.org/press/books_advances.php. xvi + 403 pp. (paperback). USD 45.00. ISBN 978-0-89327-476-4, ISSN 0741-8280.

The *Amazonian Caboclo and the Açaí Palm: Forest Farmers in the Global Market* is a brilliant and engrossing account of the history, ecology, economics, politics, culture and much more of the palm *Euterpe oleracea*. While focused on a

single species at the mouth of the Amazon River, the breadth and depth of analysis, nuanced consideration of local to global forces, and comprehensive review of dynamic environmental, market and management interactions over time are unsurpassed. The book is lavishly illustrated with dozens of black and white photographs and includes color plates that document vegetation and land use changes over recent decades. Appendices provide detailed information on research methods, plants of regional economic importance, soils, climate, and land use pathways among upland, floodplain, and savanna areas.

Readers of *Economic Botany* will relish the book in its entirety. In fact, it should be required reading for all ethnobotanists. It is also a rich and relevant case study that offers insightful perspectives and valuable analytical frameworks for those interested in tropical conservation, development, or social and environmental change more generally. Chap-

ters dealing with the invisibility and identities of caboclo producers, the social landscape, and land use change would be ideal for use in anthropology and development studies courses. Tropical ecologists will want to carefully read Chapter 3: Land Cover in a Transitional Landscape, while Chapter 7: Acai Palm Management and Agroforestry Systems would make an excellent case study in agroforestry courses. *The Amazonian Caboclo and the Açaí Palm* is another outstanding contribution from the New York Botanical Garden Advances in Economic Botany series and Eduardo Brondízio deserves praise for setting a new standard in the study of people and plants.

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