

Book Review

Jindřich Chrtěk · Jan Pergl

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Lindell Bromham: READING THE STORY IN DNA; *Oxford University Press, Oxford, 2008, 272 pp., 108 Figs. Price GBP 25.99, USD 38.-, EUR 27.-, ISBN 978-0-19-929091-8*

The textbook “Reading the story in DNA” by Lindell Bromham bears the subtitle “a beginner’s guide to molecular evolution”, which perfectly fits it. Indeed, it is an excellent introduction intended to provide a necessary background particularly for students, biologists, or medical doctors interested in whole organisms (including humans), species and ecosystems. It is also useful for anyone using DNA as a tool to reveal phylogenetic relationships, life history, population structure, development or process of adaptation of their organisms of interest. Experienced molecular biology researchers can also find some useful case studies or new examples. The author has mastered the art of explaining complex topics very clearly. A simple high school background and nimble mind are the only prerequisites to understand, e.g., the interpretation of Bayesian phylogenetics or the principles of molecular dating. The accurate and concise style will help non-native English speakers to enjoy this book.

The book is divided into four sections, running in parallel. The main text contains information necessary to understand the basic principles of molecular evolution. The second section – Case studies – gives an account of attractive and less-known examples of the application of molecular and bioinformatic methods. These case studies describe the background and results, provide conclusions and discuss limitations. Besides bringing new information, they teach the reader to think critically. Limitations are shown in each case study, no matter if they are based on recent papers in *Nature* or

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Science. The first case study – “Solving the mystery of the Chilean blob: identifying species using DNA sequences”, deals with material of unknown origin that was repeatedly found on beaches throughout the world, considered by some journalists to be transported to Earth from Mars. DNA analysis demonstrated that the substance belonged to sperm whales. It was a nice example of exploitation of GenBank, a public database of DNA sequences. Limitations resided in choice of an appropriate gene for comparison and also in the quality of DNA. L. Bromham offers 16 case studies, two in each chapter, all of them as attractive as the mysterious blob.

The third section – TechBoxes – provides an in-depth description of basic methods and phenomena from the field of molecular biology. Even though this section is written very clearly, more mental effort is required to grasp the principles. However, readers may skip it and continue to read only the main text. TechBoxes deal with, e.g., DNA sequencing, including next generation methods, DNA extraction, genetic code, and DNA replication, which is clarified particularly well and in detail. They also provide explanation of fundamental terms and theories of evolutionary biology (fitness, population size, species, neutral theory), and the essence of various tree-constructing methods (distance methods, Maximum likelihood, Bayesian phylogenetics). Everything is presented on the basis of personal experience. The author remembers debates accompanying utilization of various phylogenetic methods. She says: “... now Bayesian methods are the top of the tree. All of this in the decade and a half since I started doing scientific research. The moral of the story is that when someone tells you their phylogenetic method is the ultimate solution, try holding your breath and waiting for the next method, it won’t be far away.”

The last section is the most readable. If somebody is interested in amazing life-stories of important scientists, he need read only this section, named Heroes of the genetic revolution. Each chapter is accompanied by one hero. Fred Sanger is, not surprisingly, mentioned in the first chapter on DNA sequencing. He is followed by August Weismann, Barbara McClintock, Francis Crick, Motoo Kimura – the father the neutral theory of evolution, the Australian zoologist Craig Moritz, who introduced mitochondrial DNA in animal phylogenetic studies, Joe Felsenstein, the author of the phylogenetic software package PHYLIP, and finally by a young bioinformaticist Andrew Rambaut.

The introduction of the Australian biologist like a hero reveals the author’s relationship to Australia. Many examples taken from fauna and flora of this continent are given in the textbook. The power of DNA analysis to clarify relationships among extinct species is shown in the studies of moa, a large non-flying bird. The sad fate of thylacine, a marsupial hunted and eradicated by farmers in Tasmania, was employed as an example of the adaptation of species and convergent evolution. In conclusion, this is an excellent textbook, suitable for European students and naturalists, but written by the author from the opposite part of the world to demonstrate the common principles of contemporary biology.

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Inderjit: MANAGEMENT OF INVASIVE WEEDS; *Springer Verlag, Heidelberg, 2009, 363 pp. Price GBP 99.-, USD 164.-, EUR 109.-, ISBN 978-1-4020-9201-5*
Mick N. Clout & Peter A. Williams: INVASIVE SPECIES MANAGEMENT; *Oxford University Press, 2009, 308 pp. Price GBP 65.-, USD 108.-, EUR 73.-, ISBN 978-0-19-921633-8*

Biological invasions are, without a doubt, one of the most important threats to world biodiversity. Therefore, prevention, monitoring and eradications are crucial points in this field. Because of the increasing awareness of invasions over the last decades many information sources documenting the effort invested into understanding and managing them have resulted. Therefore, invasion biology and management of invasive alien species has established itself as a separate and remarkable field of science and nature conservation as well. These applications are reviewed in two recent books edited by Inderjit (Management of invasive weeds), and M.N. Clout and P.A. Williams (Invasive species management). The books differ in their coverage; the first book has a narrower focus dealing only with plant invaders. This loss of generality, however, allows the book to cover invasions at a habitat or a species level with more detail. The book provides chapters devoted to management of plant invasions at several major habitat types and case studies/reviews of selected important invasive species as well. Even though the selection of species presented is shifted towards N America, Asia and the Pacific, it illustrates well the wide range of approaches in the historical, biological and socio-economic context. The advantage of this is the substantial level of detail based on personal experience, because specialists have written the individual chapters. This holds true for both presented books, because the editors have chosen several relevant and well-known contributors. The chapter authors come from many universities, research institutions and regulating offices all over the world, however the prevalence of people from N America and Australia is apparent. This is not a weak point because those countries are facing high impacts from alien species and therefore have a long history of invasive species management including preventive measures. The second book by M.N. Clout and P.A. Williams provides a much wider scope as it is not limited by one group of aliens and gives the opportunity to meet the approaches used for controlling plants as well as aquatic creatures or terrestrial vertebrates. In a limited space, the book provides quite a comprehensive introduction and review of existing management approaches with insight into policy regulations, approaches to sharing knowledge and increasing cooperation with the public on early warning systems. Having both books next to each other, I have to say that even for a botanist Clouts & Williams' book is more suitable for the first contact with management of alien species. Individual chapters form a more homogenous compendium than in Inderjit's book, which is more a set of individual contributions. Nevertheless, Inderjit's book is also valuable because it is always convenient to see, e.g., a presented case study in a wider context and to have the chance to see more of them, which is possible only in books. For plant invasion ecologists, Inderjit's book can be recommended more than that of Clouts and Williams, however for people not strictly oriented on one group of organisms the latter seems to be a better

choice. Personally, I have to say that I found the second book more interesting and valuable.

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Richard T. Corlett: THE ECOLOGY OF TROPICAL EAST ASIA; *Oxford University Press, New York, 2009, 262 pp. Price GBP 29.95, USD 48.-, EUR 34.-, ISBN 13:9780199532469*

Tropical East Asia (TEA) belongs to the most fascinating ecoregions of the World. It hosts one of the highest World's biodiversities and is actually one large hotspot with at least four partial ones (Sundaland, Wallacea, Philippines and Indo-Burma). A new book neatly summarizing the current knowledge about the TEA's ecology is therefore most welcome. Richard Corlett leads us through all major aspects of the region defined as the eastern half of the Asian tropics and subtropics, from Myanmar in the west to Sulawesi and Philippines in the east, south China in the north and Java in the south. Several broadly defined ecosystem types include tropical rain forest, seasonal forest and dry deciduous forest, wetland and coastal ecosystems in addition. However, most attention is paid to the former.

In eight chapters, the principal topics treated start from the TEA's remarkable environmental history that has given shape to the present nature, continuing with physical geography including such crucial phenomena as ENSO, and with biogeography introducing major large-scale patterns. The three next chapters are devoted to ecology of plants and animals; they cover species, population and community ecology, and rather briefly energy and nutrient patterns and relations constituting the bonds in the ecosystems. The two final chapters address the currently most pressing ecological issues in TEA (and due to its extraordinarily rich biodiversity also an important global problem), which are threats to biodiversity and conservation. Pressure from increasing human population and rapidly ongoing devastation of the tropical forests (mainly in Indonesia and Malaysia) constitute a serious problem with no apparent solution except for enclosing the remnant primeval forests in national parks and reserves.

A comparison with a similarly designed earlier book by Primack & Corlett (2005) comprising the world's three main tropical rain forest areas shows that despite Corlett's TEA book's regional limitation, it provides a broader and much better balanced overview than the former book. Equal attention has been paid to physical and biological aspects, while Primack and Corlett devote most of the book's scope to the animal component of ecosystems. The TEA book however penetrates deeper into the chosen aspects such as biology and ecology of selected taxonomic groups.

Corlett's book on the ecology of TEA has been written very clearly, readably and with a well-balanced focus on all main elements of the broadly outlined topic. I recommend this brilliant overview to everyone whose intention is to learn in both a complex and inspiring way about the ecology of tropical East Asia.

References

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C. Stace: NEW FLORA OF THE BRITISH ISLES; *Cambridge University Press, Cambridge, 2010, 3rd ed., 32 + 1232 pp., 1600 figs. Price GBP 50.-, USD 79.-, EUR 59.-, ISBN 978-0-521-70772-5*

This modern and user-friendly Flora on the identification of the wild vascular plants of the British Isles also lists naturalized and crop plants recorded five or more times since 1930. About 4,800 taxa in total are covered in varying degrees of detail. Apomictic microspecies are covered in full in most genera, but not for the genera *Rubus*, *Taraxacum* and *Hieracium* (and *Ranunculus auricomus* agg.).

This is the first Flora to incorporate the new molecular system of classification based on DNA sequences not only in British Isles, but in Europe as a whole.

A synopsis of families with notes on changes from Editions 1 and 2 is provided to aid users of previous editions.

The 3rd edition contains pictures of more than 1,600 species (line-drawings and half-tones). References to the pages with relevant pictures are given in the text, which is more practical than the usual references to the numbering of pictures.

The text is organized systematically and effectively. The species determination key is not provided in cases of just two species forming a genus; in such cases, the determination of the species is provided under their description. A multi-access key is designed to facilitate orientation in of the many microspecies that are difficult to determine (such as the genus *Sorbus*) or other taxa (such as species and subspecies of *Limonium binervosum*; cultivars of *Populus ×canadensis*) etc.; every determinant is marked with a letter, and a combination of letters identifies a taxon. A paragraph “Distinct genera” is provided before the determination key of certain mid-size families; here, a genus or a group of them is listed according to one distinct determinant – for example for Apiaceae: Leaves all simple ... *Eryngium*, *Bupleurum*. The genus *Anacamptis* is defined unconventionally (includes *Orchis laxiflora* and *O. morio*) and is morphologically difficult to be distinguished from the genus *Orchis*; this problem was adequately solved using a joint determination key for the species of both genera. The determination keys are dichotomic and designed with great care; the author of Flora examined the utility of most of the determinants that were used.

The species determination key is in some genera followed by a paragraph “Other spp.” that briefly describes the species that were not included in the determination key. The reason why these species were not listed in the key is mostly their rare or ephemeral occurrence or their wrong determination. Similar content has the paragraph “Other genera”.

Hybrids are listed after the text on the first of their parents; the name and the country of occurrence are given, sometimes also a brief morphological description.

The book brings much useful, important and actual information on the flora of British Isles. However, it is important for a much larger area and will certainly be used by botanists and those interested in botany not only in Great Britain, but also in Western and Central Europe and in other regions. Every larger botanical library should have a copy.

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Hong Kong Herbarium & South China Botanical Garden (eds.): FLORA OF HONGKONG, Vols. 1 and 2; Agriculture, Fisheries and Conservation Department, Government of the Hong Kong Special Administrative Region, Hong Kong, 2007 and 2008, 329 and 331 pp. Price Vol. 1. GBP 31.50, USD 49.-, EUR 39.-, ISBN-13: 9789889825362, Price Vol. 2. GBP 44.-, USD 68.-, EUR 54.-, ISBN-13: 9789889825379

A good overview of floristic information is an essential condition for the botanical understanding of any site or territory; the new Flora of Hong Kong undoubtedly belongs to the best examples of local floras. The first two (out of four) volumes were published in 2007 and 2008. From the territory of Hong Kong comprising 1,104 square kilometers, 406 families and more than 3,000 species of vascular plants are known. This rich flora contains not only native but also many alien species, a consequence of Hong Kong's position at the crossroads of major human routes. Only a minor part of Hong Kong's territory has been built up and inhabited by a population of 7 million people; some 40% has been preserved as natural areas and parks. The resulting wide variety of human-made, semi-natural and natural habitats hosts a rich flora.

The history of Hong Kong's botanical research is about two centuries long. The first floristic collections date back to the first half of the 19th century; new plant species were described from the Hong Kong island in that period. The first proper flora followed only a few decades later (Bentham 1861). Owing to two centuries of intensive research and the existence of the collections of the Hong Kong Herbarium (HK, established in 1878 it was the first public herbarium in China), the area is floristically very well described. However, a rather long time has passed since the publication of the by now somewhat outdated previous flora of Hong Kong and Guangdong (Dunn and Tutcher 1912).

The new Flora contains all native, naturalized and introduced seed plant species (Gymnosperms and Angiosperms) that have been documented from the territory of Hong Kong. This work is based on a review of the collections of the Hong Kong Herbarium, containing about 40 000 specimens. It is a completely new undertaking, not a revision of the two previous floras. The volumes are composed of standard descriptions of families ordered according to the taxonomical systems by Kubitzki (Gymnosperms) and Cronquist (Angiosperms). Binary keys to genera follow, and the

same is repeated for the genera and species levels. The core parts, descriptions of species, contain Latin and Chinese names, references to nomenclature and related floras (most importantly the eighty-volume Flora of the People's Republic of China and the Flora of China, <http://flora.huh.harvard.edu/china/index.html>), then a concise morphological description, locality in Hong Kong and distribution in China (listing provinces) and in adjacent countries. This part ends with some brief information on the ecology and uses of the species. Indices of Chinese and Latin names complete the textual part of each volume.

Besides the coherent descriptions, the strongest point of the Flora is the illustrations. Probably all of the important species have been depicted in black-and-white line drawings of excellent quality and informativeness; many species have been captured on color photographs ordered in plates at the end of each volume. The first and the second volumes contain 521 and 488 good-quality photographs, respectively. This brings the Flora close to the level of an atlas, although photographs play only a supplementary role. A non-insider will find inspiring reading in the introductory chapters that concern the history of and present floristic research in Hong Kong (Vol. 1) and the territory's vegetation (Vol. 2).

A comparison with the Flora of China shows a high similarity in layout. One could ask why a flora in a similar format is needed about a territory already covered by an existing work. The answer is obvious: for both scientific and practical reasons, a flora based on locally-specific information is the best option that a researcher, manager or a conservationist could ask for in his or her work.

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Short reviews

Mark A. Davis: Invasion Biology; *Oxford University Press, Oxford, 2009, 244 pp. Price GBP 32.50, USD 50, EUR 37, ISBN 978-0-19-921876-9*

Is this yet another book about invasions? Is it a sign that invasion biology is going in circles considering its name resembles that of Williamson's fifteen-year-old book? Definitely not, Davis' book brings fresh air into the dynamic field of invasion ecology. As the author of the book says, he is aware that there are many books about alien species, but he feels the lack of single authored books. Many recent books are edited compendia with various scopes and level of detail. Several caveats may be hidden in books written by one author because the presented topic covers a wide spectrum of topics. Mark Davis' name is a guarantee of quality because he is

respectable researcher and teacher. The great introductory chapter draws the reader into the state of the art in invasion biology and the historical context, which is mostly the hectic development and floods of new information disregarded in the last years. I like the format of the book, which gives the author a chance to present his opinion. There are three main parts in the book with individual chapters; the first part is focused on general principles behind the invasion process like spreading and dispersal, interaction with the new environment, and the section's most important chapter that presents an integrated concept of invasibility/invasiveness. The book's second part is focused on more visible and applied aspects of the invasions: impact and management. The third part of the book is the most personal. In four chapters, Davis presents some controversial topics in invasion ecology and calls for the wider integration of invasion ecology back to general ecology. I will let the reader decide if invasion ecology stays far from other ecological and biological sciences, but this part of the book is worth skipping. I liked the book and I can fully recommend it to many students and researchers to broaden their horizons. In combination with, e.g., the textbook by J.L. Lockwood (2007), it is a good starting point for students to learn about invasions and for established researchers to refresh their ways of thinking. (Jan Pergl)

Douglas J. Futuyma, H. Bradley Shaffer & Daniel Simberloff (eds.): Annual Review of Ecology, Evolution, and Systematics, Vol. 40; Annual Reviews, Palo Alto, California, 2009, x + 732 pp. Price: Print & Online USD 84.- (individuals), USD 257.- (institutions), ISSN 1543-592X, ISBN 978-0-8243-1440-8

The volume includes 33 review articles dealing with various subjects in contemporary biology. Although all papers are worth reading (or at least leaf through), those aimed at various topics in population biology, population genetics and ecology, with some having a more or less strong accent on invasive species are of special interest for FG readers. Simberloff discusses the role of propagule pressure in biological invasions, Broquet and Petit review methodological diversity in molecular estimations of dispersal and Excoffier et al. present different models of demographic and range expansions of species, including a few analytical and several simulation studies. An evolutionary viewpoint is adopted in papers aimed at the relationships between genetic variation and strong selection (by Walsh and Blows), and species range limits (Sexton et al.). Biotic interactions is another hot topic of contemporary biology, represented here by six articles. Schemske et al. discuss the hypothesis that biotic interactions are more important in the tropics, i.e., that there is a latitudinal gradient in this importance. Kay and Sargent consider several models and diverse empirical data on how pollinators could influence speciation and conclude that floral isolation is only rarely sufficient to cause speciation on its own, but that it acts synergistically with other isolating mechanisms. Pringle et al. contribute to the field of mycorrhizal symbioses by developing a conceptual framework for considering mycorrhizas in plant species invasions Up-to-date, state of the art in below-ground herbivory and plant defenses is reviewed by Van Damm; Barbosa et al. focus on direct and indirect interactions between plants in close proximity, in which the influence of one plant on another increases or decreases the

likelihood of detection by, and/or vulnerability of a focal plant to herbivores. Another point of view represents the paper reviewing the hypotheses on the role of latex in plant defense mechanisms (Agrawal and Konno). Like in the previous volumes, all contributions are of great scientific value, and are a principal reading for anybody, who is interested in the discussed topics. (*Jindřich Chrtek*)

Tom Cope & Alan Gray: Grasses of the British Isles; *BSBI handbook nr. 13, Botanical Society of the British Isles, London, 2009, 612 pp. Price GBP 20,-, ISBN 978-0-901158-420 (softback), 978-0-901158-413 (hardback)*

The BSBI handbook series that deals in depth with one or more taxonomically difficult groups of British and Irish plants is one of the most popular activities of the British Botanical Society, welcomed by a broad audience of professional and amateur botanists and outdoor enthusiasts. Previous volumes dealt, e.g., with sedges, umbellifers, willows, crucifers, roses, pondweeds, dandelions and water-starworts. This new addition to the series is the largest handbook the BSBI has ever published. It starts with a brief explanation of terms used in grass morphology and anatomy, an overview of accepted classification (tribes) and a manual on how to use the book. This is followed by keys to, and detailed descriptions of, tribes (15) and genera (67), and by keys to species (220 species, comprising 113 natives, 10 archaeophytes, 50 neophytes and 47 casuals). Each species entry includes a formal description, local distribution and habitat, biology and ecology, status and wider distribution, and additional information all supplemented by a high quality line drawing. Distribution maps are not provided, but references to maps in the New Atlas of the British and Irish Flora are given for every species. The authors mostly used widely accepted, familiar and pragmatic taxonomic concepts, which makes the book friendly for a wide audience of readers. The book retains the high standard of BSBI handbooks series and can be recommended to anybody who is interested in this extremely diverse plant family. (*Jindřich Chrtek*)

M. Pagel & A. Pomiankowski (eds.): Evolutionary Genomics and Proteomics; *Sinauer Associates, Inc. Publishers, Sunderland, Massachusetts, 2008, 352 pp. Price GBP 38.99, USD 61.-, EUR 48.-, ISBN 13: 978-0-87893-654-0 (paperbound), 978-0-87893-655-7 (hardcover)*

This is a collection of 13 extended papers (chapters) reviewing developments in genomics and proteomics, with particular emphasis on placing these fields in an evolutionary context. The book starts with chapters devoted to evolutionary systems biology, evolution of gene expression and origination of new genes. Attention is also paid to methods used to detect new genes and general genomic methods adapted for microarray hybridization technology; contribution of gene origination and evolution to organismal evolution is also discussed. The complexity of gene regulation from the perspective of single genes and whole genomes, the role of regulatory variation in evolution (including molecular evolution and population genetics of noncoding DNA) are also outlined. A separate chapter is devoted to lateral gene transfer, its

detection, quantification, its role in microbial adaptation and implications for the phylogenetic basis of microbial systematics. Although the chapter focuses on prokaryotes, recent discoveries of eukaryote-to-eukaryote transfer (e.g., in the genus *Amborella*), are also discussed. Further chapters deal with mechanisms of genomic defense against parasitic DNA (e.g., transposons), such as with DNA methylation, DNA elimination, mutation and silencing of gene expression at the transcriptional and post-transcriptional levels and with evolution of protein complexity and protein diversity and their impact on the evolution of organismic complexity. Genomic redundancy and dispensability (utility of putative redundant genes, mechanisms and evolution of redundancy) are also thoroughly discussed. The chapter Gene network and natural selection illustrates the progress in field of molecular networks, which are the bridge between individual molecules and whole organisms. Diversity and evolution of sex chromosome is also discussed, including model dioecious plants (e.g., *Silene latifolia*). To sum up, this is a basic book for anyone interested in genetics and evolutionary biology. (*Jindřich Chrtek*)

D.J. Tennant & T.C.G. Rich: British Alpine Hawkweeds. A Monograph of British *Hieracium* section *Alpina*; *Botanical Society of British Isles, London, 2008, 234 pp. Price GBP 29.99, USD 47.-, EUR 37.-, ISBN 978-0-901158-390*

The volume is the culmination of a long-term detailed study of British alpine hawkweeds (*Hieracium* sect. *Alpina*) by the present authors, P.D. Sell, C.A. Stace and other collaborators. At first glance, it is intended for a small group of committed enthusiasts, but I am sure that everybody who will at least browse through will realize that it also addresses a much wider audience and that not only hieraciologists will frequently consult it. The book is divided into four main parts, namely the Introduction, The characters, Separation of section *Alpina* from related sections, and Taxonomic account. The Introduction provides an exhaustive historical survey, followed by general comments on geographic distribution (with species listed according to particular geographic areas and the Watsonian vice-counties), ecological demands and valuable notes for cultivation. The authors also touch briefly on current research on breeding systems, genetic variation, phylogenetic relationships and evolutionary pathways in British *Alpina* species. The following section (The characters) provides a comprehensive overview of terminology used, accompanied by numerous drawings whenever an accurate description in words is not possible. The main section, Taxonomic account, comprises more than two-thirds of the book. It begins with a general description of sect. *Alpina* and with a determination key that is structured according to geographic areas. The special part follows classical lines. It includes a total of 34 species; each species account includes accepted and English name, information about type material, synonymy, comprehensive morphological description, followed by information on geographic distribution, habitats, and conservation status and notes on variation, taxonomy and relations to another morphologically similar species. The text is supported by line drawings, photographs (both plants and their habitats), maps of distribution and a few paintings. The book raises many questions related to evolutionary history of this mountain group of hawkweeds with strongly prevailing polyploidy and apomictic mode of reproduction

(only one sexual diploid in Continental Europe); putative evolutionary pathways are really a challenge for students of apomixis. All but one recognized species are endemic to the British Isles and are mostly (very) rare, which also opens the widely discussed topic of a legislative protection of agamosperous micro-species. The book can be recommended to anyone interested in British flora and apomictic groups. (*Jindřich Chrtek*)

S.I. Ali & M. Qaiser (eds.): Flora of Pakistan, nr. 216, Rosaceae (I) – Potentilleae & Roseae; *Institute of Plant Conservation, University of Karachi, Karachi and Missouri Botanical Press, Missouri Botanical Garden, St. Louis, 2009, 142 pp. Price USD 30.-, GBP 34.50, EUR 41.-*

The present fascicle starts with a key to genera of the family Rosaceae (27 genera in total), and an overview of intrafamilial classification. This is followed by an account of the tribe Potentilleae, which (in the concept accepted) includes five genera, namely *Chamaerhodos*, *Duchesnea*, *Fragaria*, *Potentilla* and *Sibbaldia*. While the former three are monotypic in the area, more than 50 species are recognized within *Potentilla*, *Sibbaldia* includes five species. In *Potentilla*, the keys are arranged in three levels—by subgenera, and then by section (whenever necessary) and species—allowing the user to check the specimen against a subgenus/section description before moving on to species and thus reducing the probability of missidentification. The second part of the book includes the treatment of tribe Roseae, represented by the genus *Rosa* (15 taxa). Each species treatment consists of the accepted name, synonym(s), a brief description, location of type specimen, list of revised herbarium specimens, total distribution range, flowering time and notes. Line drawings (21 pages in total) show both habits and details important for proper determination. They are of different quality, with those in the genus *Potentilla* being much better. Photographs show seven species of *Fragaria*, *Potentilla* and *Rosa*. The book can be recommended to anyone interested in the flora of South Asia. (*Jindřich Chrtek*)

Gunnar Harling & Claes Persson (eds.): Flora of Ecuador, nr. 80, 152. Sapotaceae; *Department of Plant and Environmental Science, Göteborg University, Göteborg, 2007, 196 pp. Price GBP 44.-, ISSN 0347-8742, ISBN 978-91-85529-02-5*
Gunnar Harling & Claes Persson (eds.): Flora of Ecuador, nr. 83, 190(3). Compositae-Eupatorieae; *Department of Plant and Environmental Science, Göteborg University, Göteborg, 2008, 352 pp. Price GBP 73.-, ISSN 0347-8742, ISBN 978-91-85529-08-7*

The Flora of Ecuador project started more than 40 years ago (the first volume was published in 1973). The series, with to date 85 volumes, is issued at indefinite times. Volume 80 embraces the pantropical family Sapotaceae with 10 genera and 98 species (six newly described) recognized in the country. The treatment is excellent, the author (Terence D. Pennington) utilized, besides others, a large data set gathered in the past decades. Progress is reflected in the number of accepted species, which is over three times that known at the time of publication of the *Flora Neotropica*. All

taxa (genera, species, and also sections and subspecies whenever used) are keyed; most characters used are clear-cut and practical. Each species entry includes accepted name, references to the type specimen(s), a detailed but readable description, specimen citations (arranged according to provinces), brief description of the total geographic range and selected characters allowing proper determination in the field. Local names (if available) are also provided, together with notes on practical use. All species are illustrated, clear drawings highlight well the differences between species. Volume 83 includes the tribe Eupatoriae (Compositae, by Harold Robinson, in collaboration with Walter C. Holmes) and comprises altogether 36 genera with 201 species (three of them described as new). The most species-rich is *Mikania*, an extremely polymorphic and taxonomically intricate genus with highest diversity in Neotropics, especially in Brazil (62 species recognized in Ecuador). The text is arranged generally in the same manner as in the previous volume. What I personally miss in this volume are illustrations. There is only one plate (showing one species) pro genus regardless of the number of species distinguished. More illustrations could make the proper determination of, e.g., *Mikania* species much easier. The volumes of Flora of Ecuador are indispensable to all botanists interested in South American flora and vegetation. (*Jindřich Chrtek*)

Elias Landolt et al.: Flora Indicativa. Ökologische Zeigerwerte und biologische Kennzeichen zur Flora der Schweiz und der Alpen; Conservatoire et Jardin botaniques de la Ville de Genève and Haupt Verlag, Bern etc., 2010, 384 pp. Price EUR 70.-, ISBN 978-3-258-07461-9

When the book “Ökologische Zeigerwerte zur Schweizer Flora” appeared in 1977, it quickly became a standard manual used by (not only) European botanists looking for indications on ecological conditions and important traits attributed to plant species. The reviewed book is not simply a second edition, it is a completely new independent work building a new standard upon which the documentation of the ecology and biology of the lowland and mountain flora in Central Europe can further evolve. Similarly to the first edition, the principal part of the volume is an extensive table summarizing ecological and biological traits of plant species, preceded by a clearly written explanation of particular factors. In comparison with the first edition, numerous changes and adaptations were performed, the most important are as follows: *i*) the study area was extended, now it covers roughly the Western Middle Europe and the whole Alpine arc, *ii*) Bryophyta and Lichenes are considered and listed in separate tables, and their indication values only refer to the region of Switzerland, *iii*) the list of species was extended, due to the enlarged geographic area covered by the book, taxonomic revisions and new floristic discoveries (mostly neophytes), it includes 5,500 species of vascular plants (additional 900 aggregates), 650 bryophytes and 200 terricolous lichens, *iv*) some factors and values are new, scales of some another were redefined (e.g., scale of 5 units were in some cases replaced by a 9-unit scale). For the readers not familiar with the first edition, the indicators and attributes (for vascular plants) can be grouped into Climate indicators, Soil indicators, Growth and life strategies, Life history, Distribution in space and time, Threat, Occurrence in plant communities. The table is followed by an

alphabetical list of species (with synonyms) and a list of references. I also appreciate a short but interesting chapter devoted to possible applications of the data sets provided in this book, useful in both research and nature protection. My reservation concerns treatment of infraspecific taxa. As only species rank is accepted in the table, the authors decided to enhance some varieties and subspecies (if they can be distinguished by distribution and ecology) to species level. However, in many cases the species rank is (at least in my opinion) not justified. The volume is without a doubt a standard encyclopaedical work that should be found on the bookshelf of both professional and amateur botanists interested in European flora, and not only in an institution's and public libraries. (*Jindřich Chrtek*)

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