

Book review

GEORG H. SCHMID, ALFONZ RADUNZ, UTE GRÖSCHEL-STEWART: Immunologie und ihre Anwendung in der Biologie.

Georg Thieme Verlag, Stuttgart-New York, 1993, 247 pp., ISBN 3 13 771501 6.

This handbook of immunology includes almost all expressions and definitions of immunological terms. The content comes from classical key textbooks which are widely cited but includes also modern trends in both, theoretical and practical immunology. In contrast to other monographies which are oriented predominantly on clinical human immunology, authors of this book concentrate on the use of immunological methods in natural science disciplines, especially in botany. This is a new approach from which the scientists involved in membrane research (membrane proteins, low molecular weight proteins, antigen structure, etc.) will benefit. Immunological approach is very clearly explained, for example on thylakoid membrane. Especially 4th chapter is very valuable and useful for experimental scientists because it is dealing with methods for detection the antibodies and reactions between antigen and antibody. Except classical methods derived from Ouchterlony's diffuse precipitation method in gel, the authors give an information about modern methods as the use of immobilization matrix, affinity chromatography and immunological evaluation in electron microscope.

The book is well written and edited. Experimental procedures are schematically illustrated and clearly explained. It is a laboratory manual or recipe of immunological methods which can be exploited mostly in scientific but also in routine immunological laboratories.

E. REICHRTOVÁ

Book review

A. BELZ, P. FASEL, A. PETER: Die Farn- und Blütenpflanzen Wittgensteins.

Druckhaus Kay, 5910 Kreuztal, Erndtebrück, 1992, paper-back, 276+1 pp., 41 fig., 7 maps and 208 distribution maps, 8 black-and-white phot., 106 col. phot., Price: 20 DM.

Wittgenstein is a small hilly and woody area in Rhineland-Westphalia on the borderland with Hessen in Germany. This area with the altitude within the span of 298 - 841 m a. s.l. belongs to the Rhinische Schiefergebirge. Its geological composition is quite varied. Beech woods had the prevalence there, then broken rock woods, alder communities along the springs, locally peat birch forests, and even one mountain peat-bog was preserved. Forests cover 70 % of the territory.

In the introduction botanical research of the area and characterisation of grid mapping are mentioned. Present occurrence (after 1980) is distinguished from former one and from squares in which the present occurrence is not proved.

The territory was investigated intensively in the period of 1980-1991 and the literature was looked into critically as well. The nomenclature of taxa is based on ROTHMALER (1988). During the mapping project, only vascular plants, namely indigenous and naturalised species have been included, while ephemerophytes are given only in notes. Furthermore, the book outlines endangerment to the nature of the area. Specialists helped in determination and the piece of work came into being owing to cooperation with other 18 botanists.

The main part of the book consists of species account with data on endangerment (in the Rhineland-Westphalia and in Südbergländ regions) and official preservation status of the species. In case of many species distribution maps (distribution squares) information on important localities and their vegetation characteristic is presented. Some of the species are illustrated, the others accompanied by colour photographs. Critical plant species were not recognized in most cases and they are given only as agg. (however, brief information on general occurrence is often present). In some cases wrong data can be found, e.g. *Sorbus intermedia* is presented as a natural hybrid in the area, but in fact it is *S. x pinnatifida*, and *S. intermedia* is merely a cultivated species in the area. Presented *Crataegus oxyacantha* is nomen rejiciendum for *C. rhpidophylla* GANDOGER (1871), the correct name of the taxon mentioned is *C. laevigata* (POIRET)DC. By the way - authors of plant names are not given in text. The correct name for *Senecio fuchsii* is *S. ovatus* (P.GAERTN., B.MEYER ET SCHERB.) WILLD., for *Euphrasia rostkoviana*, it is *E. officinalis* L. subsp. *pratensis* SCHÜBLER et MARTENS and *Alchemilla acutiloba* is exactly *A. vulgaris* L.em. FROEHNER. These are some randomly selected cases. But with the use of certain book as nomenclatural basis without careful revision of nomenclaturally well-grounded botanist it is difficult to avoid such insufficiencies in similar publications.

The brochure is ended by literature survey related to the area and an index of German and scientific names of the taxa. The list of abbreviations used is attached.

The book under review is first of all a regional work important for field botanists and phytogeographers dealing with the territory of Germany and neighbouring countries. But it will be useful and is sure to find place in botanical libraries, in libraries of lovers of nature and everybody interested in flora of this part of Germany, who will enjoy both quite good colour photographs and relatively low price of the book.

Finally, I would like to state that it is satisfying that in Central Europe the number of publications devoted to plant distribution and dynamic changes increases. Documentation of such changes in Central European floras is surely very useful. It is the high time for active nature protection which would stop the decrease of indigenous Central European species and by means of suitable management retard avalanche-like expansion of foreign species and general synanthropization of floras.

V. MIKOLÁŠ

Book reviews

J. S. Heslop-Harrison and R. B. Flavell (Eds.): The Chromosome

BIOS Scientific Publishers Limited, Oxford, 1993, 281 pp., Price: \$ 99.00; ISBN 1-872748-32-5.

The Chromosome includes selected reviews from the Tenth John Symposium held from September 7 to 10 1992, in an edited and modified form. The reviews are focussed on those aspects of the genome which are in the centre of interest of leading researchers in this scientific field. There has been rapid progress in that research area in the most recent years due to the modern molecular and cytogenetic techniques including genetic mapping, sequencing and transformation, in situ hybridization, three-dimensional and confocal microscopy and computer processing and modelling.

An extensively used bacterium for genetic and molecular analyses is *Escherichia coli* (*E. coli*). The processes like replication, recombination and gene expression in bacteria are quite well understood. Much less is known about these in eukaryotes. Recombination provides new combination of genes. Sherratt and colleagues propose another function - an involvement of site-specific recombination in chromosome partition in *E. coli*. It is clear that the DNA replication is similar in prokaryotes and eukaryotes. However, the added complication in eukaryotes is that DNA is distributed among many chromosomes. Each replicating eukaryotic chromosome has many replicons. In the yeast, *Saccharomyces cerevisiae*, with "simple" genome specific sequences that function as origin of replication have been identified. But need for such sequences in higher eukaryotes is not yet proven.

Telomeres, the regions of DNA at the end of a linear chromosome, are required for chromosome stability. The DNA sequences found in these special structures are described by Richards et al. They also play an important role in chromosome replication. Special mechanisms must operate at telomeres to maintain chromosome length. Greider et al. has identified telomerase - DNA polymerase which synthesizes telomeric sequences de novo.

Once DNA has been synthesized within eukaryotic cell, a small proportion of bases become chemically methylated. Modified DNA bases could act as signals in the processes such as DNA replication, DNA repair and DNA expression, although in most cases we have no information about this activity. Antequera and Bird describe association of methylation with chromatin condensation and suppression of gene activity.

The nucleolus is the site of the actively transcribed rRNA genes and of assembly of the ribosomal RNA and the ribosomal proteins into preribosomal small and large subunits. It provides a well-defined region of the cell for studying transcription, transcript processing and transport. Shaw et al. show how modern microscopy combined with molecular hybridization illuminates the structural and functional organization of the nucleus and the nucleolus.

Recently, experimental procedures have been developed that allow researchers to construct recombinant DNA molecules in test tubes. Recombinant DNA technology has opened the way for

new and exciting research possibilities to identify and map variation within the DNA. Flavell et al. show that the complex genomes need different approaches to determine the base sequence of all chromosomes. The genetic maps of plants such as tomato, wheat, barley, soybean, *Arabidopsis thaliana*, maize, pea, potato and other have recently been collated.

In the book under review a lot of exciting knowledge of chromosome biology is compiled together with what has been known until now. All aspects of chromosome research included in this book will be very valuable to researchers, lecturers, postgraduate students and science managers in all areas of life science.

R. BRUTOVSKÁ

HARTL H., KNIELY G., LEUTE G.H., NIKLFELD H. und PERKO M.: Verbreitungsatlas der Farn- und Blütenpflanzen Kärntens.

Verlag des Naturwissenschaftlichen Vereins für Kärnten, Klagenfurt, 1992, 451 pp., 2457 maps, 4 fig., 180 col. pl., price not given, ISBN 3-85328-000-5.

New phytogeographical atlas of Carinthia is a further fundamental contribution to the mapping of higher plant species distribution on the territory of Austria. It comes after two previous ones (WITTMANN et al. 1987: Salzburg, ZIMMERMANN et al. 1989: Steiermark - endangered species) and it is linked to numerous distribution atlases related to the territory of Western and Central Europe.

Carinthia is not a large territory (9533 km²) situated on the south of Austria, neighbouring with Slovenia and Italy. It is orographically very diversified (in addition to Central and South Alps, the former of which reaches in Carinthia the highest point of the whole territory of Austria - the Grossglockner peak, 3797 m a.s.l., the territory is covered by large basins and valleys as well). This general geographical division together with further data on physical geography can be found in the chapter by M. SEGER following the introduction by H. NIKLFELD. Brief description of vegetation, including various forest, meadow, wetland, peat-bog, alpine (forest and non-forest) communities, but also segetal and ruderal vegetation is given (author H. HARTL). A map of the actual vegetation of the territory is attached and followed by colour tables that contain pictures of the main vegetation types and selected species. Chapters dealing with history of the flora research (author G.H. LEUTE) and mapping (H. NIKLFELD) follow. The research of flora of the territory has been lasting for more than 200 years, and has been planned since 1967. Originally the mapping was dealt with by the group from University in Graz, later (since 1971) by University in Vienna (H. NIKLFELD) and regionally also the Provincial museum in Klagenfurt (since 1972, G.H. LEUTE). By the year 1976 only 36 029 map data were gathered with the square average of 113 species (there are 319 5'x3' squares). Later the work was intensified and 174 000 data were available (estimated degree of square exploitation 78,5 %) with the species number 545 per square in average.

There are 2506 species on the whole territory (2016 indigenous species including archaeophytes, 108 naturalised ones and 382 ephemerophytes, 295 of which are given only in addition 1) and it is necessary to add 82 subspecies to this number. 37 of the indigenous species were not found after 1945.

All data were processed by the computer program BIODAT. Nomenclature of the species is based on EHRENDORFER (1973, *Liste der Gefäßpflanzen Mitteleuropas*, 2.Aufl.), GUTERMANN supplement (1975) with many improvements and additions so that it was compatible with newly issued *Exkursionsflora von Österreich* (ADLER W. et al. 1994) and *Synopsis der Pflanzengesellschaften Österreichs* (GRABHERR G. et al. 1993).

The contributors of mapping data (altogether 93) suppliers of particular data (22) and the list of specialists, who revised critical groups (70 authors from many European countries) follow. The maps are given together with legend to maps (7 signs altogether) distinguishing the degree of naturalisation of non-indigenous taxa and the time of observation. With the data on the degree of endangerment (degrees 0-5), degrees of protection (completely - partly protected) are given and a special mark refers to information in appendix 1. Following maps are arranged according to alphabetical order of plant names.

In supplements in Appendix 1 critical data on taxonomy and distribution are summarised and rare species with less than three squares of occurrence are included only here. In appendix 2 the survey of hybrids can be found and in appendix 3 the survey of adventives - those with less than 7 squares of occurrence are summed up. A special appendix follows (author G.H.LEUTE) "Plants of thermal waters near Villach" and in appendix 5 mistaken or doubtful species from the territory are given. Finally, botanical literature related to Carinthia and index to German plant names follows. The book is closed by corrections.

It is clear, that a new atlas of plant distribution is a piece of work that will often be referred to. Everybody dealing with distribution of plants not only in Austria but also on the territory of the whole of Central Europe should be among users of the Atlas. Missing data will be added by many Austrian and extra-Austrian professional and amateur botanists. High standard of the work is a challenge for all botanists in Europe who deal with plant distribution. I can fully recommend this piece of work for every important botanical library where it surely will not gather dust.

V. MIKOLÁŠ

PIERRE TARDENT: Meeresbiologie.

2nd revised and enlarged edition. Georg Thieme Verlag Stuttgart - New York 1993. VIII+305 pp., 122 figs., 26 tabs., ISBN 3-13-570802-0.

The book is an introduction to sea biology intended for those who study biology and ecology. Its contents is properly divided according to subjects into seven chapters which are accompanied with high-quality pen-and-ink drawings, graphs and well-arranged tables.

The first chapter, "Sea and environment" deals with geomorphology and ocean origin. Special attention is devoted to European seas, the Baltic and the Mediterranean.

The second chapter "Large marine ecosystems" is the largest one (from p. 41 to p. 159). Water organisms are divided into basic ecological groups - plankton, nekton, benthos. Particular groups are characterised generally, and in a systematic survey the most important representatives are given. Special emphasis is laid on population dynamics. Survey of basic methods of investigation, their reliability and importance evaluation is presented. Then, briefly, the main sea biocenoses are characterized in the chapter:

1. Wadden Sea coast, which belongs to the most productive sea provinces, thanks to large supply of nutrients from land.
2. Psammon, sandy bed, classified according to animal taxa present.
3. Sea meadows, characteristic biotopes of euphotic littoral on sandy bed. The author abides by classification according to the higher plants present here. Considerable attention is devoted to plant adaptation to environment.
4. Ecosystemes of coral reef. In this passage author concentrates especially on the biggest and the most typical reefs namely on well-known coral barrier near Australian coast.
5. Middle ocean submarine ridge - abyssal ecosystemes little known so far. Thanks to modern diving technique, intensive research of them has been developing since the 70s. New knowledge on special fauna of warm and hot springs, the temperature of which reaches even 380°C (!) is exceptionally interesting.
6. Sargas Sea communities. This passage is concentrated first of all on characteristic vegetation and primary production of the community.

Third chapter, "Ecophysiology", describes sea water chemistry and physical characters also from the point of view of abiotic factor effect on organisms. The chapter is richly illustrated and supplied with instructive graphs and tables.

Fourth chapter, "Reproduction biology", begins by general survey of plant and animal reproduction forms. Data on microorganism reproduction are absent. In our opinion, they should be completed in the next edition of the work. In other parts of the book more attention could be devoted to bacterial flora as well.

In the fifth chapter, "To biological productivity of seas", primary production of ecosystemes is analysed in detail. Less attention is devoted to secondary production, but this part is worked out sufficiently as well. It is completed by applied problems of sea fishing and whale fishing, then by sea-cultures and fishfarming.

In the sixth chapter, a literature survey arranged according to subjects is given. It is divided into geology, oceanography, technics, paleontology, evolution, microbiology, botany, zoology, morphology, physiology, reproduction biology and ontogeny, ecology, fishery, diagnostic literature and primary literature. The book is closed by a detailed subject index.

The work presented is of high standards from professional and didactic aspect as well as from the point of view of formal arrangement. The piece of work fully meets the intention declared - it is an introduction to the study of sea biology, and should be of interest for other biologists and ecologists who do not deal with sea biology as well.

Z. VOSTÁL

SCHÖNFELDER P., BRESINSKY A. (Eds.): Verbreitungsatlas der Farn- und Blütenpflanzen Bayerns

Eugen Ulmer, Stuttgart 1990, 752 pp., 9 figs., 2496 colour maps, 31 foil maps, ISBN 3-8001-3455-1.

This botanical atlas was finished at the occasion of centenary of "Bayerische Botanische Gessellschaft" establishment in 1890.

The research, collection of earlier data and preparation of the atlas is the result of 20 year lasting valuable work. Floristic mapping of Bavaria was initially only a part of research plan of

West Germany. At the same time it was a part of mapping programme of Central Europe (NIKLFIELD 1971) where data were drawn on map sheets at the scale 1:25000. Basic squares of map were further divided into four equal parts marked 1 to 4.

All native and naturalised species are included in the Atlas. The work does not contain certain small species and subspecies.

The atlas was made on the basis of over one million field data. Over one hundred thousand literature and herbarium data from before 1945 year were evaluated. Author names and workplace addresses are given in the book. Along with sixteen leading botanists scientific data were provide by 358 other people. Number of technical staff involved in the work was 62.

Main chapter of the book published in a large format are the following: Organization of the Bavarian floristic mapping, Historical survey, Methodical basis, Preparation and maps of areas content, Notes on particular taxa, Maps, List of literature and sources. Books listed below were used for taxonomic and nomenclatural assessment: EHRENDORFER (1967, 1973), MERXMÜLLER (1965-1980), Flora Europaea (1964-1980), HEGI (I. 1,3; 1984). Particular signs express following properties on map sheets with grid: 1. normal status: native and a long time ago naturalized introduced species; 2. species of unclear origin; 3. completely adapted neophytes; 4. synanthropic and cultivated species; 5. species introduced to the habitat similar to origin one; 6. extinct species; 7. data on occurrence are not known; 8. occurrence dubious; 9. herbarium data; 10. distribution boundaries are not definite.

Species distribution was marked by two colours and thus it is distinguished if the data were obtained before or after 1945 year. The regions are shown on foil maps together with climatic and geologic data.

Methods, procedures employed in this book and the data published can be successfully used in geographical and historical flora research as well as at the interpretation of the data.

A. TERPÓ

PAHLOW M.: Healing plants

Barrons Educational Series Inc., 250 Wireless Blvd., Hauppauge, NY 11788, USA; 1993. 224 pp., many colour photographs. Paperback. Price: 16.95 USD. ISBN 0-8120-1498-7.

Interest in medicinal plants is one of the consequences of general interest in nature in world-wide range. Book market is rich in publications of different quality dealing with this topic.

The book presented is interesting already by the fact that rather small part of the introduction is devoted to history, but the author did not forget the limits of self-treatment. It often happens that insufficient attention is paid to plant toxicity and similar problems resulting from unsuitable plant application. This book is not the case. Further in the introduction particular groups of active substances and the methods of tea preparation and application are briefly characterized.

However, the most important part of the book is formed by nine chapters dealing with particular illness groups (nervous and sleep disturbances, colds, bladder and kidney complaints, stomach and intestinal complaints, rheumatism and gout, gallbladder and liver complaints, childhood diseases, gynaecological complaints and menopause, geriatric complaints, cardiac and

circulatory disorders, minor injuries, skin irritations). In these chapters the possibilities of healing by plants are first given generally, then illness symptoms and definite instructions of healing procedures with prescriptions follow. Precautions against the possible dangers in connection with wrong use are marked with thick line.

Under the title: "Compendium of Medicinal Plants" the second part of the book brings characterization of more than 70 species. The selection of these plants is characteristic for Europe and first of all favourite medicinal plants, but also some aromatic plants used for medicinal purposes are included here. Brief botanical descriptions of the species include ethnobotanical notes as well. Morphological characteristics are minimal, but they are completed by excellent photos. Concrete data on active substances including proper warnings about dangerous side effects can be found here. Notes on the species cultivation are of different range, of course. Basic data on farming technology and processing are given for the species suitable for cultivation.

The book brings information about medicinal herbs on modern knowledge level in its complexity in the form clear to lay reader. This is its main value.

M. REPČÁK

Book information

(edited by P. MÁRTONFI)

R. M. HARLEY & T. REYNOLDS (Eds.): Advances in Labiate Science.

Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, UK; 1992. 568 pp. Many line and half-tone illustrations. Soft cover. Price: 24.00 GBP. ISBN 0-947643-54-4.

The book contains papers presented at the First International Conference on Labiatae, held at the Royal Botanic Gardens, Kew, in April 1991. 38 papers span a wide range of subjects relevant to the taxonomy of the family, and include papers on chemotaxonomy and economic botany. Cladistic analysis has pointed to a need for a re-evaluation of the boundary between Labiatae and Verbenaceae - some of the conclusions from this are presented here.

Other titles from Royal Botanic Gardens, Kew:

R. K. BRUMMITT & C. E. POWELL (Eds.): *Authors of Plant Names*. (1992)

R. K. BRUMMITT (Compiler): *Vascular Plant Families and Genera*. (1992)

P. S. HERENDEEN & D. L. DILCHER (Eds.): *Advances in Legume Systematics 4. The Fossil Record*. (1992)

D. HUNT (Compiler): *Cites Cactaceae Checklist*. (1992)

DAVID A. LELLINGER (with a photographs by A. MURRAY EVANS): A Field Manual of the Ferns & Fern-Allies of the United States & Canada.

Smithsonian Institution Press, 470 l'Enfant Plaza, Suite 7100, Washington, D.C. 205660, USA; 1985. X+389 pp., 402 colour photographs. Paper. Price 29.95 USD. ISBN 0-87474-603-5.

The purpose of this book is to aid in identifying all of the species of ferns and fern-allies that are native to or naturalized in Canada and United States, excluding the state of Hawaii. The amounts to 406 described species, subspecies, and varieties. Most of the species are illustrated by a colour photographs show the plants in their native habitats; other are close-ups to illustrate important diagnostic features. Technical terms used in this book are defined in the Glossary with helpful illustrations. Many bibliographic references are included.

RONALD J. TAYLOR: Sagebrush Country. A Wildflower Sanctuary.

Mountain Press Publishing Co., P. O. Box 2399, Missoula, MT 598066, USA; 1992 (Second Printing June 1993). 221 pp. Many colour photographs. Paper. Price: 12.00 USD. ISBN 0-87842-280-3.

Sagebrush country is a land of contrasts - a place of desolation and a place of beauty. This field guide explores the elegance of the sagebrush steppe as expressed in the colourful spring and fall flowers and, more subtly, in the wondrous adaptations that enable plants to withstand the extremes so typical of this harsh environment.

Through colour photographs and nontechnical descriptions, Sagebrush Country introduces visitors and residents alike to the abundant plant life in the land of bitterbrush and coyotes. This book treats northern Nevada, northeastern California, eastern Oregon and Washington, southern Idaho, western Montana, northern Utah, much of Wyoming, and the foothills and valleys of northwestern Colorado.

Other titles from Mountain Press Publishing Co.:

THOMAS J. BELZER: Roadside Plants of Southern California.

MARIO DIGREGORIO & JEFF WALLNER: A Vanishing Heritage. Wildflowers of Cape Cod.

RONALD J. TAYLOR: Northwest Weeds. The Ugly and Beautiful Villains of Fields, Gardens, and Roadsides.

RICHARD SHAW & DANNY ON: Plants of Waterton - Glacier National Parks and the Northern Rockies.

JOHN TVETEN & GLORIA TVETEN: Wildflowers of Houston.

Rice University Press, P. O. Box 1892, Houston, Texas 77251, USA; 1993. 426 pp. Many colour photographs. Paper. Price: 18.50 USD. ISBN 0-89263-319-0. (Published in association with the Houston Museum of Natural Science.)

Wildflowers and hundreds of other species flourish in southeast Texas, but until now no guide has focused exclusively on the Houston area. John and Gloria Tveten spent years seeking out both the common and rare flowers. They describe here more than two hundred plants. A colour photograph with each one will make identification easy.

The guide is arranged by colour, with each entry tracing the history and lore of the species. Many plants, for example, prairie Indian plantain and self-heal, were used by Native Americans for medicinal purposes. Others, like pokeweed and wapato, are edible. Southern dewberry and giant ragweed are used as natural dyes. And some, like rattlebush and milkweed, are poisonous.

At the end of each species account is a list of key identifying characteristics for quick reference in the field. Summaries of plant families are also included, as well as tips on where and when to look for wildflowers.
