

## BOOK REVIEWS

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BUCZKÓ, K. (2016): Guide to diatoms in mountain lakes in the Retezat Mountains, South Carpathians, Romania. – In: *Studia Botanica Hungarica*, Vol. 47(Suppl.), Hungarian Natural Museum, Budapest, 214 pp. (HU-ISSN 0301-7001).

This book is a well-structured, high standard guide to the diatom flora of the glacial lakes of the Retezat Mountains, in the South Carpathians. The present publication is the second volume of the new series “*Iconographia Diatomologica Carpathica*” (see at [buczko.eu/cryptic](http://buczko.eu/cryptic)).

Until now there was a gap in the investigations of diatom flora of the Romanian part of the Carpathians. Consequently, it is a proper contribution towards the better understanding of the diatom diversity of these Mountains. As it is mentioned above, this is a high standard book because it includes a detailed map and description about the study area. Furthermore, there have been many light and electron micrographs attached which help the readers to be able to make the best of it during their work. It also emphasises the importance of this work that it is the first illustrated guide (based on 752 LM and 188 SEM pictures) to the diatom flora of the glacial lakes of the Retezat Mountains, in the South Carpathians.

This compilation comprises all previously published data extending back to 2008. However, it focuses on small-celled diatoms. The main aim of this study is to contribute to the hardly visible, lightly silicified and recently described forms, instead of repeating the earlier published data. A further aim of this work is to provide a revised taxon list (checklist) of diatoms from the Retezat Mountains as a summary of the already published data. Altogether (with the previous data) 217 diatom taxa have been identified. New *Humidophila* and *Staurosira* taxa are also presented and a new combination is proposed for *Achnanthes helvetica* var. *minor*.

This excellent guide book can be highly recommended for ecological and palaeoecological surveys, both for experts of the field and for beginners.

Zs. TRÁBERT

FREY, W. (ed.) (2015): Syllabus of plant families, A. Engler's Syllabus der Pflanzenfamilien 13th edition. Pinopsida (Gymnosperms), Magnoliopsida (Angiosperms) p.p.: Subclass Magnoliidae [Amborellanae to Magnolianae, Liliae p.p. (Acorales to Asparagales)]. – Borntraeger Verlagsbuchhandlung, Stuttgart, Germany, 495 pp. (ISBN 978-3-443-01087-4).

More than 60 years after the 12th edition of the Engler's Syllabus der Pflanzenfamilien, the Borntraeger Science Publisher released a restructured and revised 13th edition. The latest volume (Part 4, published in 2015) deals with gymnosperms and the first part of angiosperms.

Anatomical and morphological characteristics and also molecular diversity of gymnosperms are detailed in the class "Pinopsida", which comprises four subclasses: Pteridospermitidae, Cycadidae, Ginkgoideae and Gnetidae. Numerous new discoveries of gymnosperm fossils are also presented in this part of the volume.

In the newest edition of Engler's Syllabus, angiosperms are discussed according to the phylogenetic system of APGIII and, in Part 4, first half of the subclass Magnoliidae is listed. In this system, as APGIII suggested, Magnolianae even contains Chloranthales. The group of Monocots (superorder of Liliae, in this case) has been cut in half and five orders (Arecales, Commelinales, Poales, Zingiberales and Dasygogonales), together with the superorder of Ceratophyllanae, will be detailed in the last volume (Part 5) of the Syllabus.

Due to the thorough characterisation of taxa, the detailed drawings and the large amount of photographs of flowers and inflorescences, the Engler's Syllabus may become, as the blurb says, a mandatory reference for students, experts and researchers from all fields of biological sciences.

A. ENGLONER

JOHN, J. (2016): Diatoms from Stradbroke and Fraser Islands, Australia: taxonomy and biogeography. – Koeltz Botanical Books, Oberreifenberg, Germany, 377 pp. (ISBN: 978-3-946583-03-5).

It was a real challenge to write a relatively short and compact commendation about this fascinating book. It was a challenge and fascinating, because this book leads the readers word by word into a magic world of the two largest sand islands of the Earth belonging to Australia. The descriptions of the origins, the functions of these types of habitats, the plants and animals living here, the detailed maps, beautiful photos on these wetlands, lakes and streams all overwhelm anybody who reads into it. The magnificence of this first volume of a series of publications on the Diatom flora of Australia lies in that this is a "two-in-one" book: an exciting introduction into an amazing world and a professional guide for the diatom flora of these unique habitats.

This is the story of two sand islands: Stradbroke and Fraser Island. Fraser Island is the largest sand island in the world and Stradbroke Island the second largest. These sand-built lands got separated from the mainland by a change in sea levels. Isolated from the mainland, various life-forms flourished in the lakes, streams and the sandy landscapes. Although there have been written about species of animals and plants as endemic in these islands, this book gives to the readers a plus joy when they discover the smaller or bigger differences and similarities between the diatoms living here and living in other parts of this continent or in other continents. For instance, *Eunophora tasmanica* and *E. oberonica* have been believed as endemic species only to Tasmania and New Zealand. However, this

study clearly indicates that these species were once prevalent widely on the mainland, but have become very rare and are abundant on these islands. Nevertheless, diatoms quietly function as mirrors of the environment on the islands. Sand is the substrate on which the wetlands originate nurturing the biota in these islands.

The objectives of the investigations on these two islands were to record and describe the taxonomy and distribution patterns of diatoms in the lakes, streams and "estuaries" (meeting places of sea water and fresh water) and to compare with those in a lake located nearest in the mainland. The information on the taxonomy of diatom species and their distribution would be the basis of diatom biogeography of these islands and may provide some vital missing links in the biogeographical pathways of diatoms.

Three types of wetlands can be found on these islands. These wetlands became refuges to evolving aquatic organisms; eminent among diatoms reflecting like mirrors, the past and present conditions of the sand islands.

North Stradbroke Island is located in Moreton Bay in Queensland, the northeastern State of Australia. The island is about 38.9 km long, an average of 11 km wide and has an area of 275 km<sup>2</sup>, with a maximum elevation of 219 m above sea level. The ground water occurs at varying levels, but holds a substantial volume of fresh water used for local needs as well as exports to the mainland. It is recharged by local rainfall filtering through sand. There are over 100 temporary and permanent lakes, streams and swamps on the island. These water resources support over 780 species of plants including endemic species.

Fraser Island located along the southern coast of Queensland is the largest sand island in the world. It had been listed in the World Heritage group in 1992 by UNESCO. The island is approx. 200 km north of Brisbane, the capital of Queensland. Fraser Island has an area of 184 ha, is about 124 km long and has an average width of 24 km with its highest elevation being 244 m. There are some 860 species of plants on this island. The lakes and estuaries and "Wallum" vegetation are characterised by high species diversity and nutrient-poor, waterlogged environments are part of the world heritage status of the island. There are more than 100 freshwater lakes on the island.

Many of the wetlands in the mainland of Queensland have been impacted by clearing of forest catchments for intense cultivation and mining. The dystrophic wetlands of these islands may harbour species, which have become rare or even extinct in the mainland.

Few diatoms, which have disappeared or have become very rare in the mainland of Australia are sheltered in these islands as evidence of relic species and islands as refugia. The distribution patterns of diatoms in these two islands will be relevant to island biogeographical studies involving relic species.

About 126 species found in this study, which are indicators of dystrophy and oligotrophy. The most common centric diatom in these islands e.g. is *Brevisira arentii* – an ideal indicator of dystrophy.

Beautiful micrographs taken by LM and SEM have been attached to all species, which help the users in the identification.

As it has been mentioned above, this book is recommended for all those who "just" have a desire for knowing about a special, amazing world, and for those who would like to broaden their knowledge in the world of diatoms and explore how these microscopic algae different from and resemble the diatoms living in other continents.

Zs. TRÁBERT

LEVKOV, Z., MITIĆ-KOPANJA, D. and REICHARDT, E. (2016): The diatom genus *Gomphonema* from the Republic of Macedonia. – In: LANGE-BERTALOT, H. (ed.): *Diatoms of Europe*, Vol. 8. Koeltz Botanical Books, Oberreifenberg, Germany, 552 pp. (ISBN 978-3-946583-00-4).

The genus *Gomphonema* is one of the most problematic groups among diatoms because of the lack of a broad, comprising and up-to-date work. This genus is characterised by large variation with respect to morphological and ultrastructural features. However, the greatest difference between *Gomphonema* species can be observed in the stria/areola structure and in the external and internal opening of the isolated pore(s), furthermore, in the internal proximal raphe endings. In this volume these marks have been thoroughly presented by 54 figures (Plates A–E), which will give a big hand for the users during the identification.

Although this guide summarises the diatoms of Macedonia, approx. 70%, i.e. 125 of about 180 *Gomphonema* taxa currently known from all of Europe. This was the reason why the series “Diatoms of Europe” hosted this volume. Consequently, students, workers and researchers can benefit from it in several countries of Europe.

Regarding the construction of the book it is well structured. The alphabetical order of the taxa in the part “Description” makes easy to search for a taxa in the book because it navigates the readers to the needed plates. The parts “Distribution and ecology” and “Differential diagnosis” also help a lot for the users.

Altogether 201 plates are attached, not only with light, but also scanning electron micrographs that lead us when identifying the *Gomphonema* species.

Summarising, this book is recommended for practice in identification works, and it is also suggested that the young workers of the field and students use this volume when they get to know this group of diatoms.

Zs. TRÁBERT

NECCHI, O. (2016): *River algae*. – Springer International Publishing, Switzerland, 279 pp. (ISBN 978-3-319-31984-1).

Since the well-known publication of “The ecology of river algae” (Blum, 1956), compared to lake algae, river algae have still been receiving less pronounced interest. In the first chapters of “River algae”, recognised specialists present the phylogeny of major algal groups occurring in riverine benthic habitats with further details on ecology and distribution of each group. Specific details of techniques in collecting and preserving each algal group make present book handy for both naturalists and specialists of phycology. Besides microscopic algae, the spatio-temporal structuring of soft-bodied macroscopic benthic algae is also presented based on river examples from Austria and southern New York State. Further chapters summarise in details up-to-date information about the ecophysiology and biogeography of riverine algae as well as the use of benthic diatoms in bioindication.

Present book is an outstanding contribution in coupling specific fields of phycology to better understand riverine algal communities in benthic habitats. However, the potential role of potamoplankton especially in large rivers, as well as the coupling of benthic and planktonic communities along river systems seems to be underrepresented. This may also be relevant in studies on how different human impacts affect river algae; or how benthic and limnophilic elements are structured in the light of their contribution to functioning in large river systems.

We highly recommend this book for any phycological and limnological studies on benthic algal communities, especially of small- to medium-sized rivers.

A. ABONYI

ZIDAROVA, R., KOPALOVÁ, K. and VAN DE VIJVER, B. (2016): Diatoms from the Antarctic Region: Maritime Antarctica. – In: LANGE-BERTALOT, H. (ed.): *Iconographia Diatomologica*, Vol. 24. Koeltz Botanical Books, Schmittens-Oberreifenberg, Germany, 504 pp. (ISBN 978-3-946583-05-9).

The latest volume of *Iconographia Diatomologica* introduced the diatom flora of the deepest lake of the Earth, the Baikal Lake in Siberia to us. Now, this volume leads us far away to the northernmost continent of our planet. This is the Antarctica with its amazing, beautiful world.

Basically, the term “Antarctic region” has traditionally been used for the entire southern region. Later, it has been subdivided based on physical and biological differences into southern cold temperate, sub-Antarctic, Maritime Antarctic and Continental Antarctic regions. However, according to the modern view, fifteen climatic, biologically distinct regions based on environmental domains and bioregions have been delimited on the Antarctica. The Antarctic Peninsula is identified as a distinct bioregion separated from the Antarctic Continent. The biogeographic structure within the Antarctic terrestrial biota is far more complex than was previously thought.

Diatoms are one of the most abundant algal groups in terms of both species richness and number of individuals in the Antarctic and sub-Antarctic regions. In the harsh Antarctic environment, they find suitable conditions for life in various non-marine habitats including freshwater lakes, ponds, puddles, streams and brooks, formed by melting snow and ice, as well as on wet or moist and even dry mosses and soils.

This guide book gives a short overview about all diatom research activities published prior to the start of the taxonomic revisions in 2008 that led to this volume of *Iconographia Diatomologica*, as well. This overview describes the researches on the diatom flora of two bigger groups of islands: the South Shetland Islands and James Ross Island. At the same time it reflects that diatom researches in the Antarctica had been incomplete until 2008.

Diatom researches of this guide book were also carried out on the South Shetland Island and the James Ross Island, but researches on the South Shetland Island were concentrated on more islands than previously: King James Island, Livingston Island, Nelson Island, Dart Island, Ardley Island, Robert Island and Deception Island. The South Shetland Islands are part of the so-called Scotia-Arc, a series of islands and smaller island groups in the southern Atlantic Ocean extending from the tip of the Antarctic Peninsula to the southernmost part of South America. The archipelago covers an area of approx. 4,000 km<sup>2</sup>. It comprises a long chain (*ca* 500 km) of islands, islets and rocks, forming 4 major island groups with 11 main islands. King George Island is the largest island of the South Shetland Islands. The northern coast forms a uniform arc fringed with steep ice cliffs and some off-shore reefs whereas the southern part is shaped by three major bays. Most of the island is covered by an ice dome rising up to 700 m a.s.l. The average thickness of the glacier is 250 m. Ice-free areas are few. Vegetation is composed mostly of mosses and lichens.

Livingston Island is the second largest island of the South Shetland Islands (974 km<sup>2</sup>). Glaciers and ice caps cover most of the island leaving only 10% ice-free during summer. More than 100 lakes and ponds of variable size are scattered over the entire peninsula.

Due to their diversity the Nelson Island, the Ardley Island, the Robert Island and the Deception Island are protected by ASPA. The curiosity of the latter one is that really it is an active volcano.

The James Ross Island is in the northwestern part of the Weddell Sea, close to the northern tip of the Antarctic Peninsula. The island has a total surface area of 2,450 km<sup>2</sup>.

More than 75% of its area is covered by a permanent ice cap. Compared to the South Shetland Islands, James Ross Island is more arid.

The new findings on this archipelago reflect that the level of endemism in Antarctic diatoms is much higher than earlier reported. Furthermore, many new species have been described here, which are new to science. Non-exhaustive, within the genus *Stauroneis*, 25 species were reported for the Antarctic Region, of which 18 were initially described as new. Similar trends were observed in the genera *Luticola*, *Muelleria*, *Hantzschia*, *Navicula*, *Halamphora* and *Eunotia*.

In summary, this guide book broadens anybody's knowledge on diatoms living in special habitats, furthermore it may mean a challenge for the specialists of the field because it is always an exciting job to compare the species reported to be endemic to those ones, which live in other parts of the Earth. This focuses the importance of the use of electron microscope. Nevertheless, this volume is a compeer in the series of *Iconographia Diatomologica* with its beautiful light and scanning electron micrographs on diatoms. These photos bear evidence of the various habitats mentioned above.

The book is dedicated to Gert Ausloos, a great specialist and lover of botany.

Similar to the previous volumes of this series it is also recommended for algologists and students who are just now getting to know to diatoms.

Zs. TRÁBERT