

BOOK REVIEWS

Editor: K. T. Kiss

GENKAL, S. I., KULIKOVSKIY, M. S. and KUZNETSOVA, I. V. (2020): The recent freshwater centric diatoms of Russia. – Filigran, Yaroslavl, Russia, 433 pp. [in Russian] (ISBN 978-5-6045263-3-0)

Sergey I. Genkal, a world-renowned diatom researcher together with his co-authors summarised the results of four decades research. This brilliant book presents the results of long-term studies of centric diatoms from different freshwater ecosystems of many geographic regions from different ecotypes of Russian lakes and rivers.

Centric diatoms are widespread in aquatic ecosystems, reaching mass development in plankton creating most part of the phytoplankton biomass. Many species of this group have small-size with a diameter of up to 10–20 microns, which causes difficulties in their determination using only light microscopy. Therefore, authors used transmission and scanning electron microscopy during their study. Many Centrophyceae species are indicators of environmental conditions and they are widely used in biomonitoring of water quality.

Use of electron microscopy in recent decades has led to the discovery of many ultrastructural elements of the diatom frustule, and as a result, to significant changes in the taxonomy of Centrophyceae, description of new species, genera and families. Use of molecular genetic methods also made it possible to obtain fundamentally new results on this group, which significantly changed the understanding of a given taxon.

The text includes short diagnoses, synonymy, ecology, distribution and more than 900 high quality SEM or TEM micrographs of 99 species and varieties from 21 genera, 8 families, 8 orders and 1 class. This book was prepared based on the results of 40 years of research, in which many colleagues took part. The authors express their sincere gratitude to many-many Russian diatomists and hydrobiologists.

I warmly recommend this book for algologists, hydrobiologists, limnologists, ecologists, nature conservation specialists; teachers, graduate students, students of higher education institutions, and will serve as a basis for further comparative studies of reservoirs and watercourses of Russia and other European countries.

Although the book was published in Russian, it is easy to use because the electronic version is available in pdf format and e.g. the Google translator translates perfectly to English. The electronic version will be available until 07/19/2021; (CENTRICBOOK_EV.PDF, 199.9 Mb); <https://cloud.mail.ru/stock/w7BPrzVDnC3jyXoETF3N6Bjk> K. T. Kiss

JOHN, J. (2020): The Diatom Flora of Australia. Volume 3. Diatoms from arid Australia: taxonomy and biogeography. – Koeltz Botanical Books, Oberreifenberg, 578 pp. (ISBN: 978-3-946583-25-7)

Alike its co-volumes this book is not only a pure guide to a group of algae, to the diatoms. Reading this series and analysing it I always feel enriched because they can visualise the lands with their marvel of nature – specific waters, plants and animals as if I also roamed and experienced the beauties of the fields. This volume also paints an exciting, vivid image about the wildlife of the “flaming desert”, about the fire-shaped landscape of Arid Australia. Why is the appellation “Arid”? It is defined as regions of Australia with 350 mm or less rain-

fall and about 2,400–4,000 mm evaporation. Aridity is ecologically associated with rainfall variability. Poor soil fertility, vast variation in life-cycle patterns of biota, Aboriginal lifestyle and cultural practices have shaped the unique features of current Arid Australia.

Much of Australian Arid zone is dominated by two large internally draining areas. Lake Eyre Basin in the east and western plateau region, and in the east, northern monsoonal rains feed Lake Eyre, through river systems. There are many salt lakes in this region. During floods, the south west of Queensland, adjacent to South Australia and part of New South Wales go underwater. The desert country harbours the largest underground reservoir of freshwater in the world known as the Great Artesian Basin.

Regarding the water quality in salt lakes, a wide spectrum of salinity may be experienced in a single lake because of the differences in morphometry and catchment characteristics. PH, in general, may vary within the range 7.0–9.5, but in some parts, it may be even lower than 6 due to the ground water acidity. Cyanobacteria and diatoms are found to be present even when these lakes dry up. Acidic-saline lakes provide ‘Mars-like’ environment for “weird” diatoms – which are new to science here. Besides, the objective of the current volume is to describe the taxonomy of diatoms and their geographic distribution in Arid Australia. So, it shows algae living in the most various areas of this part of the continent like lakes, rock holes, rivers and streams. Plenty of light and electron micrographs demonstrate the species richness of diatoms belonging to 90 diatom genera of Arid Australia. All photos included in this book – not only taken by microscope but also taken in nature and natural formations – resurrect veritably the Arid Australia in front of the readers’ eyes.

Moreover, the diatom identification given in this volume provides the basis for comparative studies of diatom communities, as well. So, this book is also recommended for all those who “just” have a desire for knowing about a special, impressive world, and for those who would like to broaden their knowledge of the world of diatoms living in Arid Australia.

Zs. TRÁBERT

LANGE-BERTALOT, H., FUHRMANN, A., WERUM, M., JOVANOVSKA, E. and LEVKOV, Z. (2020): Freshwater Diploneis. Two studies. In: LANGE-BERTALOT, H. (ed.): Diatoms of Europe. Volume 9. Koeltz Botanical Books, Glashütten, Germany, 700 pp. (N° ISBN 978-3-946583-30-1)

Diatoms are important bioindicators that are widely used in ecological status assessment of aquatic ecosystems. This process requires accurate identification of species that can be enhanced by such book series like Diatoms of Europe. Each part of this series describes a particular diatom genus, previous volumes dealt with important diatom genera such as *Pinnularia*, *Navicula*, *Cymbella*, *Cymboplectra*, *Amphora*, *Eunotia*, *Luticola* and *Gomphonema*.

Present book treats about the freshwater members of the diatom genus *Diploneis* that were previously underestimated compared to their marine counterparts.

The volume is divided into two chapters. The first one discusses *Diploneis* taxa living in the Holarctic, beginning with the description of their biogeography and ecology. In the taxonomic part of the chapter the authors propose subdivision of the genus into three subgenera, *Diploneis*, *Cribradiploneis* and *Volaediploneis* based on characteristic combination of certain morphological features. Later in this part, sixty-six species or subspecies are described as new to science and other fourteen species that have been recently introduced are amended. For each taxa morphological features being visible under light and scanning electron microscope, differential diagnosis, taxonomic information, remarks on distribution and ecology are provided. A table containing measurements of key parameters like

length, breadth, the number of striae and areolae, as well as a finder for plates helps the readers make head or tail of the taxa.

The second part of the book presents the results of an extensive research about *Diploneis* taxa of North Macedonia in the form of a scientific paper. The authors investigated diatoms from various aquatic habitats ranging from ancient lakes to high-elevation mountain ecosystems. They took into analysis also fossil records from sediments of Lake Ohrid and Lake Prespa. This study revealed thirty-six *Diploneis* species, among them nine species have been described as new to science, two of which were fossil. For taxa already described morphological features, taxonomic information, distribution and ecology are provided. For new species this characterisation is complemented with differential diagnosis.

All of the taxa discussed in this volume are illustrated with microscopy photographs arranged on a total of 245 plates. These contain not only images of light microscopy, but also scanning electron micrographs highlighting important details that enhance the identification and separation of taxa.

Overall, this volume provides a great overview on the freshwater members of *Diploneis* and can be successfully used as an identification book during microscopy investigations of phytobenthos samples. It can be recommended to everyone interested in studying diatoms.

M. DULEBA

