Book review

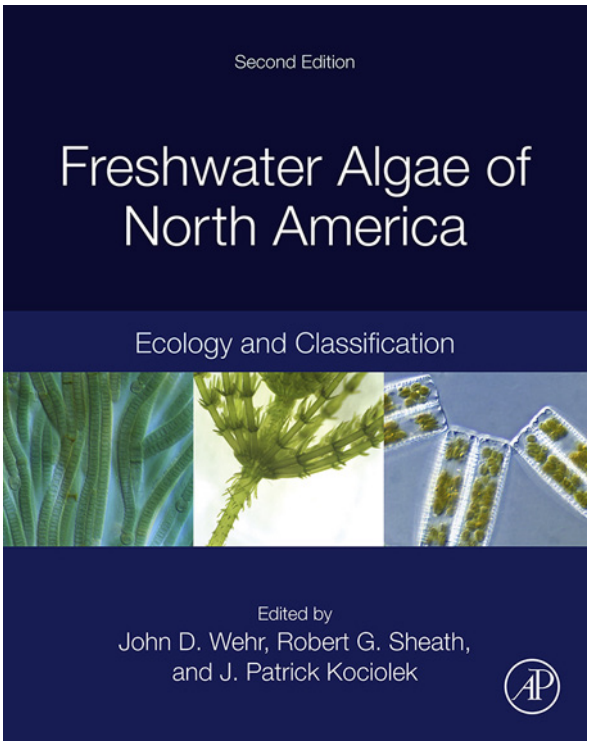
Wehr J.D., Sheath R.G., Kociolek J.P. (eds.) (2015): Freshwater algae of North America. Ecology and classification, 2nd edition. – 1025 pp., Academic Press, London, San Diego, Waltham, Oxford.

We frequently utilized the first edition of this book for educational purposes, because it provides an excellent summarization of the most important characteristics of freshwater microalgae of the temperate zone (Wehr & Sheath 2003). Thus, we welcome new edition and we expect that it will become the basic guide for phycologists during the next decade.

New edition is a result of fruitful cooperation of a large author collective, mostly composed of top specialists in phycology. It is worthy to buy second edition containing updated references, illustrations, methods and approaches. Moreover, an alteration of species concepts, which is a result of expanding molecular and phylogenetic research during the last decade, is projected there. Some chapters have been added or enlarged (Harmful algal blooms, Habitats of freshwater algae), others were reorganized. Colour images and colorized drawings replaced or replenished black–and–white drawings or photos. Although the quality of colour images varied between chapters, there are mostly high quality microphotographs. Particularly Chapter 10, dealing with Photosynthetic Euglenophytes, contains excellent images which are enough instructive to help beginners with identification of this hyperactive organisms. Colour images of living diatoms in Chapter 16 show overlooked cytology of this algal groups, which makes of this book an exception, because their study is almost exclusively based on dead frustules. Another well illustrated chapters are Chrysophyceae, Synurophyte Algae, Dinoflagellates, Cryptomonads. Finally, a myriad of new electron microscopy (both scanning and transmission) images of good quality have been added to several chapters.

Both the taxonomy and systematics of microalgae have undergone substantial changes in the last two decades. Recent taxonomic research suggest that traditional species boundaries, based on morphology have been drawn too widely and that real species diversity has been greatly underestimated. Phenotype–based microalgal species, previously considered „cosmopolitan“ and „euryvalent“ in fact consisted of several genetically distinct entities – cryptic species or even genera. Some of them lack any useful apomorphy to be distinguished by other way then molecular methods (reviewed in Laliaert et al. 2014; Dvořák et al. 2015).

As a result, many new genera and species has been described in last decade, which is demonstrated



particularly in Chapters 4 dealing with filamentous Cyanobacteria. Both cyanobacterial chapters have been significantly reorganized using new taxonomic classification based on polyphasic approach (Komárek et al. 2014).

Chapter 1 is an excellent introduction to algal groups, with basic characteristics, key to group delimitation and colour images of typical representatives of the main types of algal thallus. Chapter 2 summarizes a biology of algae in lentic and lotic freshwater habitats as lakes, ponds, pools, springs, streams, subaeric and extreme habitats. Introductory part is followed by 17 chapters dealing with particular algal groups including Cyanobacteria, Red Algae, Flagellate Green algae, Coccoid and Colonial Green Algae, Filamentous Green Algae, Conjugating Green Algae, Photosynthetic Euglenoids, Xanthophyte, Eustigmatophyte, and Raphidophyte Algae, Chrysophyceae, Haptophyte and Synurophyte Algae, Diatoms, Dinoflagellates, Cryptomonads and Brown Algae. Within each chapter, we can found basic characteristic of the cell organization, methods of sampling and preparation, key to North

American genera, images of the most frequent species, ecology, distribution, genera characterization and comprehensive literature. Some of them include also schematic phylogenetic tree giving the basic view of group evolutionary history.

Chapter 20 (Harmful Algal Blooms) reviews the most important nuisance algae, explain factors responsible for algal overgrowth, summarize major impairments, toxins and the most abundant harmful species within planktic and bentic assemblages. Chapter 21 deals with algae used for biomonitoring, paleolimnological reconstructions including sampling and evaluation methods. Readers can use extensive Glossary, Author, Subject and Taxonomic Indexes for fast orientation within a book.

Overall this book is well written, illustrated and instructive enough to be recommended as an elementary textbook for students and young phycologists. It helps users with a first orientation in algal flora of the North America and it is also largely applicable for European flora. We strongly recommend this book to be included in your personal and institutional library.

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