

## Book review

KRAFT, Gerald T. 2007 — *Algae of Australia. Marine Benthic Algae of Lord Howe Island and the Southern Great Barrier Reef, 1. Green Algae*. Canberra, Melbourne, CSIRO Publishing. 347 pp, hardcover. ([www.publishing.csiro.au](http://www.publishing.csiro.au); ISBN 9780643094321, AU \$125).

Knowledge of the Australian seaweed flora has come a long way in the last few decades. Early milestones such as William Henry Harvey's "Phycologia Australica" (of which the first volume was published exactly 150 year ago) have been superseded by Bryan Womersley's monumental six volumes of the "Marine Benthic Flora of Southern Australia" (1984-2003). Now we welcome the series "Algae of Australia", which will cover an even broader geographical and taxonomic range, including both marine and freshwater macro- and micro-algae, and will certainly be another important step forward in the knowledge of Australasian algal diversity.

Gerry Kraft has spent decades involved in his study of seaweeds in and outside Australia, and has here produced an excellent floristic account of the marine benthic green algae of Lord Howe Island and the southern Great Barrier Reef. One hundred and thirty-five green seaweed species and infraspecific taxa from 7 orders, 18 families and 41 genera are described and illustrated with excellent photographs in this volume. About 26 of these taxa are newly described or have been recently described from Lord Howe Island or Australia by Kraft and colleagues. Species coverage is likely to be very high, given the enormous number of specimens collected and examined (over 2000 herbarium specimens, 400 formalin-preserved samples and several hundred microscopic slides).

The Introduction deals with the phycological history of Lord Howe Island and the Capricorn Group of the southern Great Barrier Reef, and detailed descriptions of the study area and the marine habitats are provided. This chapter furthermore touches briefly on biogeographical affinities of the green seaweed flora, with a large number of species (twenty-three) that appear to be endemic to the region. As "marine benthic green algae" do not comprise a natural group of organisms, I would have liked to see a note on which taxa are actually included in the flora. Obviously, marine macro-ulvophytes (although some are barely visible with the naked eye, e.g. *Ulvella* and *Entocladia*) are treated, but also the enigmatic "multicellular" *Palmophyllum* and some Chaetophorales are included. It is, however, not entirely clear if other green algae (e.g. marine multicellular trebouxiphytes) are absent in the study area or excluded in this work.

The main part of the book is the taxonomic account of 135 species and infraspecific taxa. The systematic arrangement largely follows the latest phylogenetic concepts although the placement of some taxa is somewhat artificial (for example the position of Anadyomenaceae in the Cladophorales), often because appropriate alternatives are yet lacking (e.g. family level classification in the Siphonocladales), as is acknowledged in the footnotes. At the genus and species level, several taxonomic changes have been made or adopted following molecular phylogenetic evidence (e.g. the merger of *Ulva* and *Enteromorpha*, and the return of *Cladophora herpestica* and *Valonia ventricosa*).

Dichotomous keys with clearly contrasting characters are provided to the genera and species. The taxonomic section has an excellent format. Detailed descriptions are provided for the genera within orders, along with other information such as the number of recognized species, diagnostic characters for species identification, geographical distribution and phylogenetic relationships. The

description of each species generally includes the currently accepted name, type information, the basionym and important synonyms, and a list of relevant references. The morphological descriptions are comprehensive and clear. Additional information for each species consists of notes on ecology, morphological variation, biogeography, taxonomy and phylogenetic affinities as appropriate, as well as lists of voucher specimens, providing further details on habitat and distribution in the region. A strength of the systematic discussions is that they are not restricted to Australasian taxa, which makes them valuable for algal taxonomists world-wide. Another strong aspect of the book is the artwork. All species are illustrated with excellent photographs showing diagnostic vegetative and, where possible, reproductive structures. Next to the black and white photographs, 11 beautiful colour plates depict the intertidal and subtidal habitats as well as in situ images of more than 50 species. It is a pity that something went wrong in the printing of the figures 72 and 73, which are identical. Figure 72, illustrating *Halimeda micronesica* and *H. discoidea* is correct, but the figure for *H. gracilis* is missing (although the legend is correct). The publisher is aware of this and the missing plate will be included as an appendix in Kraft's next volume on brown algae.

One new bryopsidalean genus (*Botryodesmis*) and 11 new species are described. Although the description of new species based solely on morphological grounds may sometimes be questionable (given the high morphological variability that is often encountered in green seaweed species), I believe that it is still useful and necessary to describe the obvious unidentified diversity in the study area. Describing new taxa is one way to do this. Moreover, as stated by Kraft, it is doubtful that some of the Pacific plants in this book are conspecific with morphologically similar European taxa (e.g. *Ulva compressa*, *Ulva lactuca*, *Chaetomorpha gracilis* and *Cladophora rupestris*). A molecular survey of these Australasian green seaweeds would be valuable and it will be interesting to see how the presently conceived morphological diversity will compare with the genetic diversity, once adequate DNA sequence data becomes available.

An extensive bibliography of 19 pages, an appendix with new taxa and combinations, a comprehensive glossary, and an index to all taxa and their synonyms complete the work.

Gerald Kraft is to be congratulated on this well-written and beautifully illustrated first volume of the "Marine Benthic Algae of Lord Howe Island and the Southern Great Barrier Reef". This book will not only be the ideal guide for phycologists heading for the Great Barrier Reef or Lord Howe Island, but it will also be an important taxonomic reference work for many years to come. At a reasonable price, this book, which is printed on good quality paper and nicely bound, should find its way onto all phycology and marine laboratory library shelves.

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