



## Book Review

R. OCHYRA, R.I. LEWIS SMITH and H. BEDNAREK-OCHYRA. 2008. **The Illustrated Moss Flora of Antarctica**. xvii + 685 pp. + 42 plates. Hardback, size 27.6 × 21.9 cm. Cambridge University Press, Cambridge, UK. Price £ 125.00 (US \$ 250.00). ISBN 978-0-521-81402-7. Publication date 13<sup>th</sup> November 2008. Information available at [www.cambridge.org/9780521814027](http://www.cambridge.org/9780521814027).

Antarctica is a very inhospitable continent where only *ca* 0.3% of its surface is free of snow and ice in summer. Ecological conditions and especially the severe climate result in relatively low plant and animal species diversity. Terrestrial communities of the Antarctic biome are composed mainly of lichenised fungi and mosses, while the native vascular flora is represented by only two species, *Deschampsia antarctica* Desv. and *Colobanthus quitensis* (Kunth) Bartl. Antarctica was the last continent to be discovered and initially did not attract the attention of professional botanists. The first observations on the plant cover of the area were made by participants of sealing expeditions from the United States of America and the United Kingdom. James Eights, naturalist of the US Exploratory Expedition, gathered the first two moss species, *Polytrichastrum alpinum* (Hedw.) G.L.Sm. and *Sanionia uncinata* (Hedw.) Loeske, during his 1829–1831 visit on King George Island. The true biological exploration of Antarctica started at the end of the nineteenth century when a number of national expeditions were organized to this continent which brought back botanical collections, including bryophytes.

The entire accumulated knowledge of Antarctic mosses is summarized in *The Illustrated Moss Flora of Antarctica*, published by the prestigious Cambridge University Press. It is also the crowning achievement of many years' scientific bryological activity by the eminent Polish bryologist Professor Ryszard Ochyra, very capably assisted by his wife Dr Halina Bednarek-Ochyra in polar regions of the Southern Hemisphere and this opus is apparently the pinnacle of their bryological career and presumably their life's fulfilment. Their successful cooperation with Dr Ronald I. Lewis Smith, ecologist from the British Antarctic Survey, who contributed large moss collections from various parts of the Antarctic, resulted in this opus which is the first comprehensive treatment of the bryoflora of the Antarctic biome. The foreword to this remarkable work was written by Sir Martin Holdgate, former Chief Biologist of the British Antarctic Survey and past Director General of IUCN – The World Conservation Union.

In the introduction to the Flora, the characteristics of the continent – biogeographic zones, climate and geology are set out. Next, in details, the history of bryological investigations in Antarctica is discussed and accompanied by illustrations of the botanists studying mosses in this region, title pages of the most important bryological publications and photographs of moss specimens from the oldest collections, including some type specimens. A very useful chronological synopsis of the moss taxa published from the region together, with their current status, is included. In the next chapter the characteristics of terrestrial plant communities and the ecology of mosses in Antarctica are given. An account of the species diversity and phytogeography of the Antarctic moss flora is also presented. These topics are very well illustrated by 42 colour photo-

graphs showing landscapes, main habitat types, bryophyte communities and individual moss species.

The principal part of the work consists of systematic accounts of the taxa, amounting to 531 pages. It is preceded by the conspectus of classification and the dichotomous key to the genera of Antarctic mosses. Keys to the classes of the Bryophyta, the subclasses of the Bryopsida and the orders of the Dicranidae as well as the keys to the genera within families are given, whereas key to species are presented within the genera concerned. The Flora is based on a very high number of voucher specimens. More than 10 000 moss specimens from historical and recent collections gathered in various regions of Antarctica by early and modern expeditions were examined. It is necessary to emphasize that all type specimens of names used for Antarctic taxa had been located and studied. In addition, all accepted species names have been typified, including many oldest moss names described by Johann Hedwig and Samuel Élisée von Bridel. It goes without saying that the examination of herbarium specimens was very laborious and time-consuming because these collections are housed in 34 large World Herbaria. However, the basis was the collection of the British Antarctic Survey in Cambridge, UK (AAS). Since the first bryological explorations of Antarctica began a total of 308 moss taxa have been reported, which, after detailed analysis, were found to represent 111 currently recognized species and two varieties from 55 genera and 17 families.

The Flora provides detailed descriptions of the taxa of all ranks. The species descriptions are complete, providing species name, homotypic and heterotypic synonyms with type citation from the protologue and data from the labels of the type specimens. The morphological and anatomical descriptions of the gametophyte and sporophyte are very profound and are followed by discussion which includes information on diagnostic characters, morphological diversity, taxonomic problems etc. Also observations on sexual and asexual reproduction, detailed ecological data based mainly on the authors' own field experiences, information on the global and Antarctic distributions of taxa, including detailed dot maps and lists of selected specimens examined, are given. All the species are beautifully illustrated with full-page comprehensive line drawings prepared by Halina Bednarek-Ochyra which, as usual, set a high standard in both accuracy and artistic merit. Used in conjunction with the detailed descriptions they facilitate species determination.

The Flora introduces many taxonomic and nomenclatural novelties including 4 new combinations or designated status, 120 new synonyms, eight new selected epitypes, 216 new lectotypes and two new chosen neotypes. At the end of the book there is a bryological glossary, references (totalling 2089 items) and an index to the Latin plant names.

To summarize, *The Illustrated Moss Flora of Antarctica* is an excellent, original scientific work which should be in the library of every professional botanist. It is outstanding both in relation to its content and standard of printing. I have no hesitation in saying that it is the most comprehensive bryological treatment that I have ever seen. I am sure that the Flora will prove invaluable, not only for bryologists, but for all researchers of the vegetation of the southern cold regions.

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