

Whitelock, L.M.: **The Cycads**. - Timber Press, Portland 2002. 374 pp. Hardcover USD 59.95. ISBN 0-88192-522-5.

Do you wish to have the feeling of walking in ancient Jurassic forests? No problem, simply plant a grove of a dozen cycads or plunge into reading of *The Cycads*. Loran Whitelock, a proprietor of Cycad Gardens in Los Angeles, has written a delightful encyclopedic account on this prehistorically attractive group of plants as a result of four decades of his intensive studying cycads in cultivation and their native habitats around the globe.

In recent years, the newfound interest in cycads has dramatically increased, so today cycads enjoy a high reputation and popularity among people for several reasons. Not true palms but rather gymnosperms with naked seeds and often brightly coloured cones, long geological age, many primitive anatomical and morphological features, all this appeals to botanists who consider cycads for living fossils – an ancient seed-bearing lineage with its unique biology. On the other hand, a very ornamental palm-like architectural structure, considerable diversity in leaf shape, size, general habit and colour confer to cycads a high status utilized by horticulturists in landscape plantings. The need for a more complete identification of the range of toxic and poisonous substances, these plants produce, may prove valuable just in biomedical research. The seeds of *Cycas revoluta* are, for example, still used in both Japanese and Chinese folk medicines. Keep all these facts in mind and add a rapid destruction of tropical rain vegetation as well as ruthless obsession of cycad collectors in pursuit of their material, no surprise that all cycads are now endangered and for this reason regulated by CITES.

*The Cycads* comes in the time of increased interest in research, collecting and landscaping of these plants when the field of cycadology becomes hotter than ever. The future does not look positively for many of the world's cycads. Therefore, according to Whitelock's words, "education of the public regarding the value of cycads, both historically and commercially, must be encouraged", and *The Cycads* clearly fulfills this goal. The book is well-organized into 8 readily digestible chapters with fine line drawings interspersed within the text. More than 500 colour photographs taken from the natural sub-tropical and equatorial habitats of cycads make up the book for a real visual feast.

Chapters 1 and 2 on cycad distribution and classification are telegraphic, written in a very easy to understand way for lay readers avoiding as far as possible some pedantries of scientific form or obscure botanical terms. Anecdotes on common names of cycads in local languages make reading funny and fluent.

Chapter 3 reviews morphological features characterizing cycads. Parts on the reproduction biology are

well done, the author has gone into considerable detail in accordance with up-to-date scientific observations of pollination and fertilization processes. I think that one or two cross-sections of a female cone, showing histological details which the text refers to, could have been added for a better understanding and illustration of hidden developmental pathways which a gardener has no chance to see. Indeed good illustrative examples are given for mutations expressed in variegated, monstrous and cristate plants.

Chapters 4 and 5 on cultivation and propagation are treated intelligently. The text goes beyond merely listing cultivation requirements or propagation techniques. A wealth of exact and reliable information which the author conveys on these pages springs from decades of his personal experience with the cycad cultivation in a variety of climates, and from his research on the propagation and artificial pollination. Especially information on the time required for female cones to ripen should be of considerable benefit to growers. Tissue culture techniques are still the challenge for the most cycad species.

Strategies of cycad conservation and protection are the focus of the sixth chapter. I have found this chapter extremely important, not only from the point of view how to conserve or the emphasis of the role that the artificial propagation plays in *ex situ* conservation of very rare cycads – a good example given for *Microcycas calocoma*. More than the explanation of basic conservation principles or CITES regulations is the author's call for the establishment of a worldwide rescue network to which projects that affect areas of botanical interest such as dam construction or road building would be reported. A rescue network would notify interested parties, for example botanical gardens. This proposition has resulted from the planned construction of a dam in Colombia that will flood the habitat of the critically endangered and endemic cycad genus *Chigua* with its two species. A real conservation crisis might be remedied through a rescue network, therefore the idea is worth of the long-term encouragement.

Cycads in human activities is the topic of chapter 7. Surprisingly, the earliest known use of cycads for food by Australian Aborigines is dated back to approximately 4000-5000 B.C. This chapter is good conceptually and as a source of information, but I expected somehow more. Latest findings from biomedical research are neglected whereas religious decorations and fine cycad art are emphasized strongly.

Lengthy chapter 8 is an important part of the book that provides the alphabetical listing, morphological descriptions and conservation status for nearly 300

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taxonomically recognized cycad species. The book follows Stevenson's cladistics and classification distinguishing 11 genera, but an identification key to, at least, the commonly known and cultivated species misses. It is a pity since the book quality could have been improved almost to perfect. An appendix lists cycads for particular purposes based on design characteristics and horticultural requirements of plants. Ten pages of

references together with species index complete the volume.

In *The Cycads* Whitelock has written a unique book that is driven by ideas and packed with solid and useful information. This is a book that should be enjoyed and understood by intelligent non-scientists as much as by professional botanists and horticulturists. And, of course, it will be a prized possession of all cycadophiles.

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