



AUSTRALIAN
PALMS

BIOGEOGRAPHY, ECOLOGY
AND SYSTEMATICS

JOHN LESLIE DOWE

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Back cover (clockwise from top left): *Livistona victorina*, Bungle Bungle Ranges, Western Australia; *Licuala ramsayi*; *Calamus mofii*; *Linosyris apiculatus*; and *Caryota albertii*. Photos by the author.

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Foreword

Despite the long and venerable tradition of rivalry between Australia and the UK, it is obvious that us Pomnies are on a losing wicket when it comes to plant diversity. The thrills of my own encounters with wild Australia still resonate today – the first tastes of sclerophyll vegetation on the Sydney sandstones, a formative road trip through the Atherton Tablelands, and the lush subtropical forests of the Lamington National Park, for example. I have scarcely dipped my toe in the water, but such experiences can only leave one awestruck and distinctly envious of the natural wonders that Australians can enjoy on their doorsteps.

The palm family makes only a modest contribution to the Australian flora, but is exceptional nonetheless. No other regional palm flora includes representatives of all five palm subfamilies. It encapsulates flavours of both the Malesian and Pacific palm floras while including several specialities of its own. Australia contains memorable palm-dominated landscapes, such as the forests of *Licuala ramsayi* in famous localities such as Mission Beach, *Livistona mariae* on the Finke River system in the Northern Territory, or the vast stands of Kentia palms, *Howea forsteriana*, on the off-shore island of Lord Howe. Significant among the endemics is *Oraniopsis*, an ancient-looking palm whose

affinities as a representative of a lineage otherwise found only in South America, Madagascar and Juan Fernandez were determined only 25 years ago. Similarly dramatic, the foxtail palm *Wodyetia* was only described in 1983, having just been discovered among spectacular granite boulders in the Melville Range in Queensland. That such finds can be made so recently hints at the possibility of more great botanical discoveries to come in Australia.

It is perhaps surprising that a comprehensive guide to the palms of Australia has been lacking until now, but readers will not regret the wait. In typical style, John Dowe has tackled the subject in great depth and detail, producing an account so thorough that it is unlikely to be superseded for many years to come. It has arrived at a time when the need for palm information has never been greater, to service both horticultural appetites and much-needed conservation agendas. This rich source of knowledge and beautiful images is a milestone in the botanical history of Australia and a fitting tribute to the wonders of its palms.

William J. Baker
Head of Palm Research
Royal Botanic Gardens, Kew

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Preface

This book provides an updated and thorough systematic and taxonomic treatment of the Australian palm flora. The only other similarly broad treatment of Australian palms was prepared over 130 years ago, by German botanists Hermann Wendland and Oscar Drude in 1875 in their *Palmae Australasicae*, published in the journal *Linnaea*. Based on the knowledge of the time, that early work described 26 species and examined the palm flora from aspects of biogeography, relationships and taxonomy. It provided the basis for much of our understanding of Australian palms well into the 20th century. Treatments such as Bentham's *Flora Australiensis* of 1878 and F.M. Bailey's *Queensland Flora* of 1902 provided timely synopses, but did not address broader aspects of biogeography, relationships and classification. Early 20th-century palm botanists such as Odoardo Beccari and Max Burret provided some broader examination of Australian palms, but most often in a context of revisions and new species descriptions. In the later decades of the 20th century, interest in Australian palms was renewed through the work of A.N. Rodd, A.K. Irvine, J.L. Dowe, D.L. Jones and F.B. Essig; revisions of *Archontophoenix*, *Caryota*, *Hydriastele*, *Licuala*, *Linospatix*, *Livistona* and *Ptychosperma* have been completed in recent decades.

Sixty species of Australian palms are recognised and discussed in this book. The book takes note of recent advances in biogeographic and phylogenetic research, which allow the Australian palm flora to be incisively placed within a regional and global context. These aspects are examined in detail. *Australian Palms* includes expanded and thorough descriptions of genera and species, with additional information on distribution, ecology and typification. The descriptions of both genera and species were obtained following extensive field-work and examination of over 1600 specimens in herbaria in Australia, south-east Asia, Europe and the US. The author has studied and collected all mainland palm species in their natural habitats, and has studied those from off-shore territories as cultivated specimens in Australian botanic gardens such as

The Palmetum in Townsville, Flecker Botanic Gardens in Cairns and Mt Coot-tha Botanic Gardens in Brisbane, and in Florida at the Fairchild Tropical Botanical Gardens and the Montgomery Botanical Center. This work is the culmination of over 20 years of research into Australian palms.

■ STRUCTURE OF THE BOOK

This book is divided into two sections. The first section provides a broad introduction, with detailed summaries of botanical history, historical biogeography, distribution and ecology. The second section deals with systematics, classification and taxonomy, providing assessment and description of taxa from the level of subfamily to subspecies, arranged according to the most recent classification of palms in *Genera Palmarum: The Evolution and Classification of Palms* (Dransfield *et al.* 2008). Each species is clearly illustrated with images of habit, leaves, flowers, fruit and relevant diagnostic features. The final chapter offers a key for the field identification of Australian palm species. The book concludes with a glossary.

■ METHODS

The taxonomic history of each species was investigated and nomenclature and typification were reviewed. Protologues for all taxa were sourced and scrutinised for validity of publication, typification and adherence to the appropriate articles in the *International Code of Botanical Nomenclature* (McNeill *et al.* 2006). Type specimens were located at numerous herbaria, and images of at least one sheet (of those with multiple sheets) are included. Where types had been lost, misapplied or inappropriately designated, new typification is presented. In some cases, typification is designated for the first time. Species descriptions are based on the examination of about 1600 herbarium specimens and living palms in their natural habitats and cultivation. Descriptions are based on mature plants. For

many measurements, such as stem height and leaf length only the upper range is provided. Otherwise, the range of sizes recorded for some organs, where size is more critical, is provided. Phylogenetic assumptions and reconstructions are based on the most recent analyses as referenced in the text, mostly accepting those presented in *Genera Palmarum* (Dransfield *et al.* 2008). Author abbreviations follow Brummitt and Powell (1992), herbarium acronyms

are according to Holmgren and Holmgren (1998), journal abbreviations follow Bridson and Smith (1991) and publication abbreviations follow Stafleu and Cowan (1976–98).

Specimens examined in compiling species descriptions and associated with typification may be viewed as an Excel spreadsheet at <http://www.montgomerybotanical.org/Pages/Research.htm>.