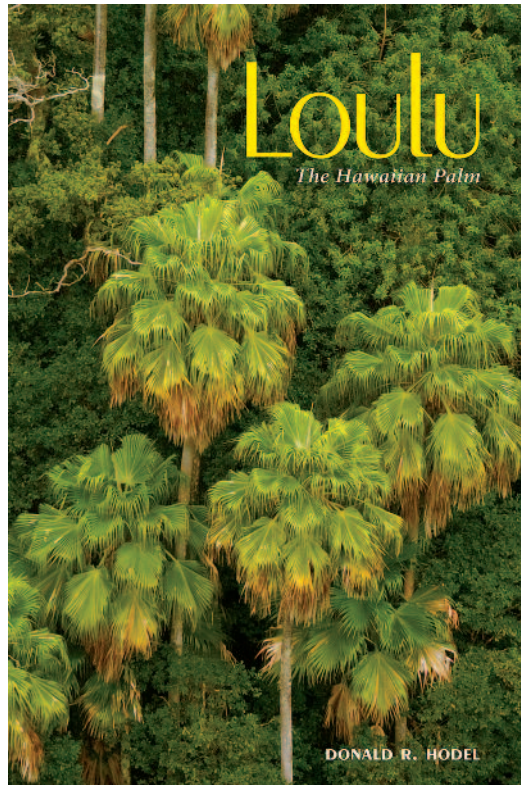


LOULU: THE HAWAIIAN PALM – Donald R. Hodel, University of Hawai'i Press, 2012. ISBN 978-0-8248-3567-5. US\$48. Hardback. 190 pages.

Pritchardia palms are renowned as elegant ornamentals in many countries, and Hawai'i's native *Pritchardia* have steadily increased in popularity over the past two decades. There has long been a need for a field guide to the Hawaiian *Pritchardia*, called *loulou* in Hawaiian (pronounced "loh-loo"). This much anticipated work is the first complete reference of its kind, a definitive treatment covering all aspects of loulou palms. Long a respected authority on palms, Donald R. Hodel draws on his 34 years of abiding passion for loulou and their study. Bolstered by the grassroots desire and the fundraising efforts of members of the Hawaii Island Palm Society and the Palm Society of Southern California, he carried out extensive fieldwork and herbarium research over a number of years in order to produce this authoritative yet approachable source of valuable information on all 27 *Pritchardia* species.

With an eloquent foreword by *loulou* enthusiast and Pulitzer-Prize-winning US Poet Laureate William S. Merwin, the book explores the human history behind the palms from their importance to ancient Hawaiians to the intriguing lives and work of botanists and conservationists who have been honored with species that now bear their names. The Hawaiian archipelago is of course famous for its highly varied terrain and remarkable array of climates that occur within close proximity that have given rise to extremely high numbers of endemic species. It is particularly interesting to read about how scientists have used molecular research to determine that the ancestors of *Pritchardia* originated from the Americas before speciating into two dozen Hawaiian species. With great detail and adeptness Hodel explains *loulou* distribution and ecology from island to island, covering climate types from sea shore to mountain top and detailing how hosts of unique factors form niches in which each different species is found. It should be noted that a type of Hawaiian forest called 'ōhi'a forest that is frequently referred to in the book is consistently misspelled as 'ōhia. There are excellent color-coded distribution maps with elevation shading of each island on which natural *loulou* populations occur; these visuals are powerful in demonstrating just how extremely limited



the ranges of some species are. There is also an important telling of how distribution patterns and populations of *Pritchardia* have changed since 400CE when humans first settled in Hawai'i, specifically how man drastically reduced their numbers by altering the ecosystem with the introduction of invasive flora and fauna. The conservation status and hurdles to survival of each species are discussed in detail, and the author also provides the data in tabular format so that the reader can compare the conservation status of all Hawaiian *Pritchardia*; it is striking to see the figures laid out and to see just how endangered some species are. The book is a call to action as it makes clear that all native "loulou will not survive in the wild without new and continued management" and that ex situ cultivation alone is not sufficient: "The only viable strategy to ensure survival of a species, including a sufficient amount of genetic diversity, is to preserve and manage its habitat so that it can produce and maintain healthy, regenerating populations." A very hopeful example of the positive change that can come for imperiled populations when concerted strategies are implemented is given in the recent success of the 'Ōhikilolo Ridge population of *P. kaalae*, which is now

rebounding with greater vigor than expected after goat- and pig-proof fencing encircled the palms, invasive plant species were removed and bait stations installed to suppress rats.

It is worth owning a copy of this book for its superb photos alone. Even though I had seen an image of it before, I gasped audibly upon first seeing a series of new images of the famous Huelo Islet, a dramatic sea stack whose top is covered with an improbable number of glaucous-leaved *P. hillebrandii*, a striking visual example of how *loulou* used to dominate lowland dry forest on main islands before humans changed the ecosystem. The book is filled with 240 color photos, many full-page showing glorious *loulou* in stunning vistas. Hodel is a skilled photographer with a great sense of light; those with experience photographing palms *in situ* know how difficult it can be to capture images of mature palms in wild places. Paul Weissich related in his foreword that some of Hodel's images were taken while hanging out the doors of helicopters! Other highlights include a gorgeous photo of *P. lowreyana* growing on dramatic sea cliff Moloka'i and vintage photos of *loulou* in habitat by University of Hawai'i's first botanist, Joseph Rock.

While today the two most widely cultivated species, *P. pacifica* and *P. thurstonii* (both non-Hawaiian), are well known and easily identified, the process of identifying Hawaiian species has often been confusing and frustrating for both botanists and horticulturists alike for as long as Hawaiian species have been known to science. In his research Hodel has sought to improve identification process by placing more emphasis on character weighing as taxonomic strategy, that is to say, less importance is given to the shapes and features of individual flowers while precedence is given to a combination of characters including leaves, fruits, and flowering structures. This new approach was first published in his *Review of the Genus Pritchardia* (a 2007 IPS journal supplement) using technical language familiar to botanists. His new book has a newly expanded key that includes all 27 *loulou* species and seven other non-native, naturalized palms, so that anyone in the wild places of Hawai'i can identify any palms. Both in his new key and throughout the book he has employed simplified terminology (e.g., "fruit stalk" instead of infructescence), making the identification process accessible to laypeople. Also near the

beginning of the book is a useful introduction to palm morphology with which one can become familiar with the botanical characteristics of *loulou* palms. Unfortunately no metric measurements are provided alongside inches in the key. While I greatly admire the care and effort put into developing his species concepts, I am disappointed that modern molecular taxonomic tools were not implemented before this great book was published, as they would have shed significant additional light on *Pritchardia* species relationships.

Each of the Hawaiian species is described individually with great attention, discussing its natural and human history, distribution, ecology and conservation status accompanied by maps and illustrated with numerous color photos showing mature individuals in their habitats as well as closer views of distinctive characteristics such as fruits and inflorescences. Notably absent are close-up photos or scale drawings of individual flowers, though this omission may reflect Hodel's approach in their identification. The most salient physical features and identifying characters are italicized to aid one in finding them quickly within the text, and some species' entries have interesting human histories attached. There is a strong emphasis in referring to each species by common names. Each entry is headed by a scientific binomial after which only its common name is used, so *Pritchardia kaalae* becomes *Ka'ala Loulu* and *P. gordonii* is Gordon's *Loulou*. Pukui and Elbert's Hawaiian Dictionary lists *Loulou Hiwa* as the name for *P. martii* and *Loulou Lelo* for *P. hillebrandii*. It is not clear why Hodel chose to call them Martius' *Loulou* and Hillebrand's *Loulou* when Hawaiian names already existed for these species before they were named by western science.

A handy seven-page comparative table of all 24 Hawaiian species is found at the back of the book, a quick reference comparison for each species, listing synonyms, common names, distribution, habitat type, ID characters and conservation status. Also included is a useful guide to *loulou* propagation that includes instructions on sowing, germination, potting on, planting out, watering, and soil types.

This book deserves a place in the library of any lover of palms and native Hawaiian plants.

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