

PALMS

Journal of the International Palm Society

Vol. 65(2) Jun. 2021



THE INTERNATIONAL PALM SOCIETY, INC.

The International Palm Society

Founder: Dent Smith

The International Palm Society is a nonprofit corporation engaged in the study of palms. The society is international in scope with worldwide membership, and the formation of regional or local chapters affiliated with the international society is encouraged. Please address all inquiries regarding membership or information about the society to The International Palm Society Inc., The International Palm Society Inc., 56 Autumn Oaks Drive, The Hills, Texas 78738 USA, or by e-mail to info@palms.org, fax 512-607-6468.

OFFICERS:

President: Ray Hernandez, 4315 W. San Juan Street, Tampa, Florida 33629 USA, e-mail rayhernandez77@gmail.com, tel. 1-813-832-3561.

Vice-Presidents: Jeff Brusseau, 1030 Heather Dr., Vista, California 92084 USA, e-mail jbrusseau@newportnational.biz, tel. 1-760-271-8003. David Tanswell, PO Box 2007, Ashgrove West, Brisbane, Queensland 4060, Australia, e-mail david.tanswell@hotmail.com, tel. 61-7-3369-5944.

Corresponding Secretary: Toby Spanner, Tizianstrasse 44, D-80638 München, Germany, e-mail toby@palmssociety.org, tel. 49-172-630-7778.

Administrative Secretary: Larry Noblick, Montgomery Botanical Center, 11901 Old Cutler Road, Miami, Florida 33156 USA, e-mail lnob@montgomerybotanical.org, tel. 1-305-667-3800 ex 104.

Treasurer: Tom Jackson, P.O. Box 1102, Ross, California 94957 USA, e-mail jacksongrantgallery@outlook.com, tel. 1-415-923-3299.

Directors: 2016–2020: Robert Blenker, Florida; Jeff Brusseau*, California; Gregg Hamann*, California; Haresh*, India; Susan Hubbell, Florida; Tom Jackson*, California; Leland Lai*, California; Michael Merritt, Hawaii; Romeo Montalvo, Texas; Larry Noblick, Florida; Lazaro Priegues, Florida; Michael Smukall, Florida; Grant Stephenson, Texas; Michael Valentine, Colorado; Scott Zona, North Carolina. **2018–2022:** Cindy Adair, Puerto Rico; Norm Bezona, Hawaii; Faith Bishock, Florida; Julie Cleaver Malzoni, Brazil; John Dransfield, United Kingdom; Len Geiger, California; Ray Hernandez, Florida; Horace Hobbs, Texas; Andrew Hurwitz*, California; Chad Husby, Florida; Francisco (Paco) Martí Navarro, Spain; Don Martin, California; Jill Menzel*, Brazil; Fernando Roca, Peru; Tobias W. Spanner, Germany; Andrew Street, Florida; David Tanswell, Australia.

* IPS Benefactor

Bookstore: www.palms.org

Chapters: www.palms.org

Website: www.palms.org

Palms (formerly PRINCIPES)

Journal of The International Palm Society

An illustrated, peer-reviewed quarterly devoted to information about palms and published in March, June, September and December by The International Palm Society Inc., 1401 Lavaca St. #751, Austin, Texas 78701 USA.

Editors: John Dransfield, Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE United Kingdom, e-mail j.dransfield@kew.org. Scott Zona, 1807 Seminole Dr., Hillsborough, North Carolina 27278 USA, e-mail scott.zona@yahoo.com.

Associate Editor: William J. Baker, Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE United Kingdom, e-mail w.baker@kew.org.

Guidelines for authors are available on request from the Editors, or on-line at: <http://palms.org/wp-content/uploads/2020/05/Instructions-for-contributors-rev-jan-2020.pdf>

Membership Levels:

Free membership includes the monthly Newsletter delivered via email.

Electronic membership (US\$40 per year or \$100 for three years) includes the Newsletter and our journal, *PALMS*, in digital format.

Full membership (US\$60 per year or US\$150 for three years) includes the above plus a printed copy of *PALMS*. Dues include mailing of the journal by airtel service to addresses outside the USA

Benefactor and Lifetime memberships are also available. Dues may be paid on-line at www.palms.org. Subscription price is US\$55.00 per year for libraries and institutions.

Change of Address: Send change of address, phone number or e-mail to The International Palm Society Inc., The International Palm Society Inc., 1401 Lavaca St. #751, Austin, Texas 78701 USA., or by e-mail to info@palms.org.

Claims for Missing Issues: Claims for issues not received in the USA should be made within three months of the mailing date; claims for issues outside the USA should be made within six months of the mailing date.

Periodical postage paid at Austin, TX, USA and additional mailing offices. Postmaster: Send address changes to The International Palm Society Inc., The International Palm Society Inc., 56 Autumn Oaks Drive, The Hills, Texas 78738 USA.

PALMS (ISSN 1523-4495)

Mailed at Lawrence, Kansas 15 June 2021
©2021 The International Palm Society

The full text of *PALMS* is available on EBSCO Publishing's database.

This publication is printed on acid-free paper.

57

Palms Featured on Advertising Trade Cards

D.V. JOHNSON & J.C. MACKNIGHT

67

Udo Dammer (1860–1920): a Palm Specialist at Berlin Botanical Garden

J.L. DOWE

81

Klasow Valley, West Papua, Indonesia and its Palms

G. HAMANN

95

Ceroxylon ravenii, a New Acaulescent Palm from Cordillera Azul National Park, Peru

I. VILLALBA & L. VALENZUELA

**FRONT COVER**

A rattan palm (*Korthalsia zippellii*) emerges from the forest canopy in Klasow Valley, Indonesia. See article by G. Hamann, p. 81.

BACK COVER

Hydriastele costata in Klasow Valley, Indonesia. See article by G. Hamann, p. 81.

Features

Palm News	56
Palm Literature	56, 80, 93, 101
Patrons of the IPS	103



Hydriastele procera perched on a cliff overlooking the sea, Raja Ampat, Indonesia. See article by G. Hamann, p. 81.

PALM NEWS

Finally, there is good news about palm oil production from African oil palm. All agronomic indices are predicting growth in demand for palm oil in the coming decades, but increasing the supply does not have to come at the expense of sensitive tropical ecosystems. New research finds that the implementation of good agronomic practices can boost yields from existing plantations by as much as 62% in large holdings and 53% in small holdings. Better agronomic practices include improved harvesting methods, better weed control and fine-tuning plant nutrition. In addition to improving yields to meet market demands, better management techniques could prevent deforestation of an estimated 2.6 million hectares of forests and peatlands and prevent the release of 732 metric tons of carbon dioxide. The research is reported by J.P. Monzon et al. in *Nature Sustainability* (<https://doi.org/10.1038/s41893-021-00700-y>, March 2021).

iNaturalist is documenting the distribution of *Nypa fruticans* in Queensland, Australia.

Gaps in the known distribution along the Cassowary Coast are being filled in by photographic records obtained by Jock Mackenzie during field work supported by the Great Barrier Reef Foundation and MangroveWatch North Queensland. New records include the Johnstone River at Innisfail, where, according to local residents, the species became established in the river following Cyclone Larry in 2006 (although the palm was not detected by surveys in 2008). Mackenzie also documented *Nypa fruticans* in the Barron River, just north of Cairns.



An artificial date palm has become the symbol of a Warsaw, Poland, neighborhood. The palm, by artist Joanna Rajkowska and architect Michal Runicki, stands 15 m (49 ft) tall in the center of Charles de Gaulle Circle, at the intersection of Aleje Jerozolimskie and Nowy Swiat. Its steel trunk is covered with real date palm “bark,” and its leaves are made of metal and plastic. Installed nearly 20 years ago in the place traditionally reserved for a community Christmas tree, the palm was initially dismissed as an eyesore, but over

the years, it became a landmark for the area, a tourist attraction and a social barometer (it once wore a giant nurse’s cap, in solidarity with striking healthcare workers). The sculpture recalls the Jewish community of the 18th century that settled in the neighborhood but that was nearly eradicated by World War II. The palm, at once familiar in aspect and alien in context, also symbolizes the modernity of the city, welcoming the new and unfamiliar to Warsaw.

Palms Featured on Advertising Trade Cards

DENNIS V. JOHNSON AND JANE C. MACKNIGHT¹

The emerging economies of nineteenth century Europe and the United States inspired print advertisements to promote products and increase consumption. This involved notices, often illustrated, in newspapers and magazines, along with the issuing of retail trade cards, sometimes referred to as Victorian trade cards.

These pictorial cards were printed on pasteboard and designed to be a part of retail packages of items such as cigarettes or food or they were given out by merchants when a purchase was made. Illustrations were created specifically for the cards, sometimes based on other images or photographs. To encourage repeat sales, the cards were intended to appeal to collectors and featured interesting front designs and material about the company and its products on the back, often along with details about the image. Typically, the illustrations were unrelated to the product and taken from a wide range of subject matter to catch the eye of the customer. New cards were issued on a regular basis, some were in numbered sets to further encourage collecting. Some companies also sold albums for their trade card collectors.

The heyday of trade cards extended from the 1870s to about 1900, but their use continued into the twentieth century and to the present. In the United States, baseball trade cards originate from that era and remain popular collectibles.

A perusal of internet resources and literature on trade cards (Dave Cheadle's book *Victorian*

Trade Cards [1998, Collector Books, Paducah, Kentucky, USA] is a primary source) revealed that a few dozen palm illustrations were featured.

The following figures present slightly enlarged images of trading cards portraying economic palms. Actual size of the cards ranges from 3.5 × 6.8 to 8 × 13.5 cm. Dates and coconuts are the most commonly featured, with fewer instances found for areca, nipa, oil palm, rattans and sago.

The first group features cards depicting date palm (*Phoenix dactylifera*). The card in Figure 1 shows an imposing man holding a large bunch of date fruits, weighing 50 pounds (22.7 kg) according to the German text on the reverse. Issued in the early 1930s by the Reemtsma cigarette company in Germany, it is part of a series *Pictures from Around the World*. Paul Popenoe used the image as the frontispiece in his book *Date Growing in the Old and New Worlds*, published in 1913, which he identified as taken at Colomb-Bechar, Oran, Algeria, by the Swiss-born photographer Jean Geiser, who lived in Algiers. The original photograph was likely ca. 1900.

The next cards (Fig. 2) promotes Liebig meat extract (beef bouillon). The left card features date palm leaves carried by Christians, presumably in Jerusalem, in a Palm Sunday procession. The card, with text in Dutch, is

¹3726 Middlebrook Ave.,
Cincinnati, Ohio 45208 USA
djoh37@aol.com



1. Man holding a bunch of ripe dates.



2. The uses of date palm leaves (left) and fruits (right) were depicted in these trade cards.

one of a series Plants in Ceremonies, issued in 1950. The Liebig company was originally founded in UK, with operations throughout Europe and in South America. The right card

is another Liebig card, text in French, from 1898 depicting date palms in a desert oasis setting, part of a series Plants Cultivated in Hot Countries.

3. The date palm depicted as the gnomon of a sundial.





4. More date palms in trade cards.

The card in Figure 3 is unusual as it depicts a solitary date palm with stones positioned so that the falling shadow of the tree tells the time, functioning as a rudimentary sundial. This practice is attributed to agricultural workers in the Upper Nile of Egypt, according to the English text of this Morris cigarette card from UK. The card is part of a series *Measurement of Time*, issued in 1924.

Figure 4 shows more cards depicting date palms. The left column shows a trade card of

a date palm and presumably bags of fruits being transported by animals, issued by the Guérin-Boutron chocolate company, Paris, from about 1905. The French text extols both chocolate and date fruit. Next down is a desert scene of date harvesting. Another Liebig card, it is part of a Sahara Desert series from 1943, with text in Dutch.

The stereoscopic card of a date grove in Java is rather unusual. Dated to the 1920s, it is an actual photograph in a series *Peeps into Many*



5. A card advertising Dunham's Concentrated Cocoanut.



6. A sequence of Player's cigarettes cards showing coconut harvesting.

Lands, to advertise Army Club cigarettes, manufactured by Cavanders Limited, London. In the English text, the company offers for sale a Camerascope to view the image in three dimensions. The date grove depicted was likely a trial experimental plot established during Dutch colonial rule. Climatic conditions on Java are not amenable to the ripening of date fruits, and Indonesia is not a commercial date producer. The upper right image of Figure 4 shows a 1929 depiction of a man harvesting a bunch of dates. It is a card in the series *Products of the World*, Wills cigarettes, Bristol and London. Beneath it a Gallaher, Belfast and London, cigarette card of a date palm and its fruit from the series *Plants of Commercial Value*, 1917.

Figure 5 is the first of several cards depicting coconut (*Cocos nucifera*). This Dunham's Concentrated Cocoanut advertising card from the 1880s shows a split image of coconut

harvest and the retail product. The concentrate was an ingredient in cookies and puddings. Text on the reverse claims that it is equal in quality to fresh coconut. The Dunham Company was located in St. Louis, Missouri, USA. In Figure 6 are four sequentially numbered Player's cigarette cards showing coconut harvest, rafting of nuts to a processing site, dehusking and copra drying. These cards were offered in 1929 and are identical to the *Products of the World* set from Wills cigarettes; both companies were owned by Imperial Brands.

Figure 7 features other palms. At the left is a card depicting a village on a South Seas island showing sago palm-thatched, elevated dwellings in a coconut palm setting. This is a Churchman's cigarette card from a British series *Curious Dwellings*, 1926. The card in the middle demonstrates the harvest of oil palm (*Elaeis guineensis*) bunches in the



7. Various species of palms depicted on trade cards.

(Belgian) Congo, part of a series Useful Plants of Congo, 1941, and is another Liebig meat extract card with Dutch text. The photographic card to the right demonstrates the sterilizing of oil palm bunches to ensure high quality oil from the fruit. It is part of a series of 27 cards from 1929, entitled Malayan Industries, distributed by the Carreras Tobacco Company in the UK.

Figures 8 and 9 present additional examples from the Malayan Industries card set. At the top rattans are shown drying in the sun prior to use in furniture making, etc. A grove of areca palms (*Areca catechu*), whose seeds are harvested for betel nut, a popular Asian masticatory, is shown in the middle card. Below it is an illustration of a coconut plantation, which carries the information on the reverse that the coconut palm in Asia has some 360 uses, but European companies cultivate it only for coconut oil.

The card in Figure 9, top, shows a well-organized coconut nursery where seeds are germinated and held for about 6 months before transplanting to the field at a density of 48 palms per acre, according to the text on the reverse. Note that the young plants are shaded by cut coconut leaves. The next card down demonstrates the bagging of dried copra

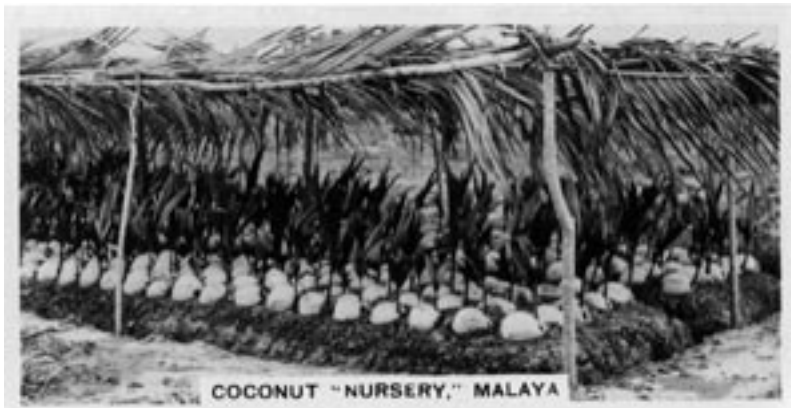
(coconut meat), which contains some 68 per cent oil, for export. The last card presents (*Nypa fruticans*) in its mangrove habitat. The native palms are tapped for juice which ferments into a mild alcoholic beverage; nipa leaves are fabricated into shingles, locally called *atap*, a popular and inexpensive thatching material in Tropical Asia.

In addition to their value to collectors, the trade card set from Malaya, as actual photographs, represent historical documentation of the exploitation and processing technologies of industrial products of that era.

Trade cards are an interesting historical window into the human culture of their time and helped to educate consumers about the wider world, including useful palms. More than just a collecting hobby for the individual, trade cards are ephemera holdings of museums and libraries. The Cornell University Library, Ithaca, New York, houses the Waxman Collection of Food and Culinary Trade Cards. This collection of some 6500 trade cards supported an exhibit in 2017 entitled Trade Cards as Illustrated History. Possibly the largest collection is that of the New York Public Library, numbering more than 100,000 trade cards.



8. Photographs of harvested rattans, an areca nut plantation and a coconut estate.



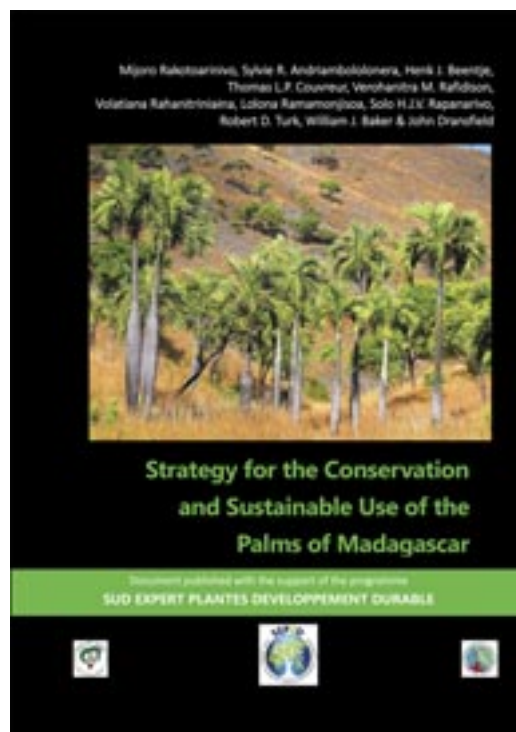
9. Photographic cards showing the propagation of coconuts, packing of copra into bags for export and the growth habit and unusual fruits of *Nypa fruticans*.

PALM LITERATURE

STRATEGY FOR THE CONSERVATION AND SUSTAINABLE USE OF THE PALMS OF MADAGASCAR –

Mijoro Rakotoarinivo, Sylvie R. Andriambololonera, Henk J. Beentje, Thomas L.P. Couvreur, Verohanitra M. Rafidison, Volatiana Rahanitriniaina, Lolona Ramamonjisoa, Solo H.J.V. Rapanarivo, Robert D. Turk, William J. Baker and John Dransfield. SEP2D, Sud Expert Plantes Développement Durable, Labora Printer, Antananarivo. No ISBN number. Pp 66, numerous color photographs and maps.

Madagascar is recognized as not only one of the world's most extraordinary islands for its exceptional endemism but also an area of greatest land use change and habitat loss that threatens this diversity. This book is a timely compilation of one of the most iconic groups of plants where the species are largely endemic to this island – the palms. The book gives a comprehensive summary of what is known about the palms of Madagascar from their diversity and taxonomy to details of their importance to humans and their uses as well as the threats to their survival. The summary of the utilization of palm products and the link between this and the potential for impact on species is a particularly innovative addition to a conservation assessment rarely found and it will go a long way to assist in realistic conservation outcomes. This book will provide a very useful reference to anyone with an interest in Madagascan palms including those with scientific interest, horticultural interest and conservation interest and it marries these differing perspectives and interests well. The work puts the Madagascan perspective into a global framework and perspective making it



internationally relevant and interesting, especially to make comparisons with other areas rich in palm flora.

The conservation action plan outlined is very comprehensive in its scope and is linked closely to IUCN guidelines and recommendations. The many different aspects covered will enable different actions to be undertaken by a diversity of different players while still contributing to a common conservation goal. To that extent while necessarily ambitious, the action plan provides a systematic and comprehensive framework for action. I hope that this document can be used to assist to gain leverage, motivation and finances to achieve these goals.

The book brings together in one place considerable resources of literature, useful statistics and facts that will benefit those who are involved in on the ground actions as well as higher level planning.

ALISON SHAPCOTT
*University of the Sunshine Coast,
Queensland, Australia*

Udo Dammer (1860–1920): a Palm Specialist at Berlin Botanical Garden

JOHN LESLIE DOWE¹

In his role as a curator at Berlin Botanical Garden, Udo Dammer was active in the horticulture and taxonomy of palms. This paper presents a brief biography, outlines his career as a palm specialist, and documents his publications on the family.

Carl Lebrecht Udo Dammer (Fig. 1) was born 8 January 1860 in Apolda, Thuringia, Germany, the eldest of 13 children of Dr Johann Gustav Eduard Otto Dammer and Albertine Caroline Mathilde Dammer (*née* Bohnenstengel). Father Otto Dammer was a teacher and lecturer, a political campaigner for worker's rights and author of a number of chemistry text books (Grebing 1957). Udo's education commenced at the Luisenstadt Gymnasium continuing through to secondary level. In 1877–78 he was a gardener at the Royal Garden at Potsdam and in 1878–79 volunteered as a gardener at Berlin Botanical Garden. During 1879–81 he trained as a gardener at the Pomological Institute at Proskau followed by one year, in 1882, studying natural sciences at Berlin University. During 1882–86 he was employed at the St Petersburg Botanical Garden, first as an assistant and later as a conservator in the herbarium.

He returned to study in Berlin in 1886 and was awarded a doctorate in 1888 from the

University of Freiburg (Dammer 1888). In 1889, he took on the role of assistant at the Botanical Museum in Berlin, in 1893 as assistant curator and in 1895 as a curator at the Berlin Botanical Garden. In 1896, he taught subjects in tropical agriculture at the botanical garden, including the propagation and care of both annual and perennial plants (Anonymous 1896). In 1897 his expertise as a cultivator and student of the palms became apparent with his first publications on the subject. These received favorable reviews and he was soon acknowledged as a palm specialist because of his proficiency in both horticulture and taxonomy (Anonymous 1904). In 1905, he was awarded the title of Professor (Anonymous 1906).

Although Dammer travelled widely in Europe, including Great Britain and Russia, he never ventured to overseas destinations. He retired from the Berlin Botanical Garden in 1919 and involved himself with the management of his property at Karlsruhe. On November 15, 1920, Dammer died in a vehicle accident at Grossrambin near Kolberg and was buried at Karlsruhe (Saatoﬀ 1920). To acknowledge his contribution to the botany of palms, Dammer was commemorated in a number of palm names, including the genus *Dammera* (= *Licuala*) and the species *Chamaedorea*

¹Australian Tropical Herbarium,
James Cook University,
Smithfield, QLD 4878, Australia
john.dowe@jcu.edu.au



1. Udo Dammer in middle life, date unknown. (Dammer family collection).

dammeriana (Fig. 2) *Geonoma dammeriana* (= *G. poiteauana*) and *Orbignya dammeriana* (= *Attalea cohune*) (Fig. 3). To acknowledge his strong interest in palms, family members endearingly applied the moniker "Der Palmen-Dammer."

The details of Udo Dammer's life and career are here summarized from a broad range of published accounts and resources, the most important being Degener (1908), Saathoff (1920), Anonymous (1921), Harms (1922) and Zepernick and Timler (1979). An online family

genealogy, prepared by descendants, also includes personal details (Dammer 2020).

Botanical Context

To place Dammer's taxonomic work on the palms in context, it is necessary to understand the state of palm taxonomy during the period that he was most active and the role of contemporary German botanists in a global setting. The most significant palm taxonomists of that period included Hermann Wendland of the Royal Gardens at Herrenhausen near Hanover, Oscar Drude of the University of Göttingen and Dresden Botanical Gardens, João Barbosa Rodrigues of the Jardim Botânico, Rio de Janeiro, Brazil and Odoardo Beccari of the University of Florence, Italy. Of these botanists, Wendland was the most influential on Dammer's work, becoming a personal friend and well-respected mentor (Dowe 2019). Dammer's taxonomic work focused primarily on the establishment of new genera and the description of new species. He had no apparent interest in higher level systematics or family classification but was nonetheless a strict

2. *Chamaedorea dammeriana*, cultivated in Hawaii. (Photo by D.R. Hodel).



Orbignia dammeriana Barb. Rodr.

3. *Orbignya dammeriana* (= *Attalea cohune*), illustration of a cultivated palm in Rio de Janeiro Botanical Garden (Barbosa-Rodrigues (1903), *Sertum Palmarum Brasiliensium*, vol. 2, p. 63, artist unknown). (Source BHL).

adherent to the developing rules concerning plant nomenclature. With other taxonomists at Berlin Botanical Garden, he was a co-signatory to a "code of working rules concerning the formation, choice, and application of plant names" known as the Berlin Rules, a precursor to the International Code of Botanical Nomenclature (Robinson 1897, Engler et al. 1897, Engler et al. 1902, Dammer 1902a).

Despite his productivity in describing new palm species, Dammer's nomenclatural retention has not been significant. For example, of the 68 novel palm names attributed to him only 12 are in current use (see Govaerts et al. 2020), the others relegated to synonymy or are nomenclaturally invalid. In his role as a curator, Dammer facilitated the development and expansion of the living palm collection at Berlin Botanical Garden and it became one of the most comprehensive collections in Europe (Engler 1909, Urban 1909) (Fig. 4).

Books

Dammer's first published account of palms was in the book *Handbuch für Pflanzensammler* (Dammer 1891), which he wrote when he was an assistant in the Botanical Museum Berlin. In this work he outlined methods for the



4. View in the Great Tropical House, Berlin Botanical Garden (Ledien 1909, fig. 57). (Source BHL).

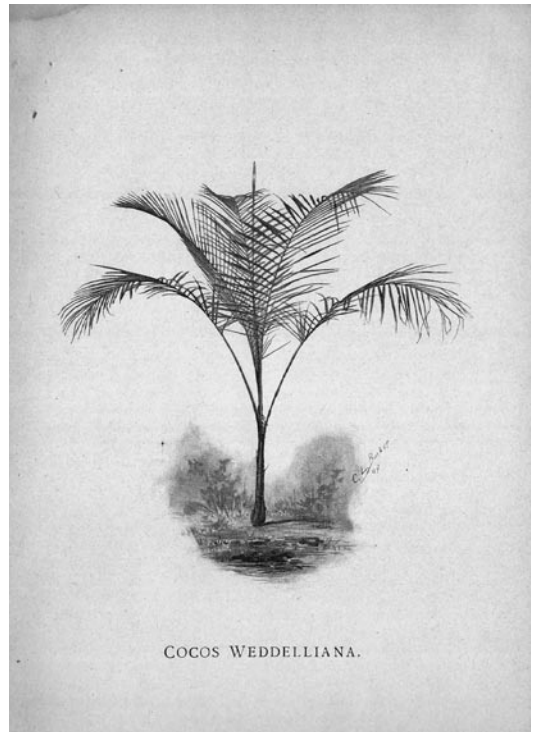
effective preparation of herbarium specimens. With regard to palms, he described the morphological differences between pinnate-leaved and palmate-leaved palms as part of a summary of the differences in leaf forms amongst plants relative to the preparation of large leaves for herbarium specimens.

Dammer's interest and success in palm cultivation prompted the writing of a major book on palms, *Palmenzucht und Palmenpflege: Anweisung zur Anzucht und Pflege der Palmen* (Dammer 1897a). In this he provided detailed information on the horticultural care of palms likely to be encountered in collections in Europe. The first half of the book included chapters on ecology and distribution, acquisition, cultivation, fertilizing, and diseases and pests. The second half of the book went under the heading "The more important genera and species of palms." This was arranged systematically, with generic descriptions and lists of species, and treated about 630 names, including both currently used names and synonyms. The book was illustrated with plates of palms growing in the collection of the Berlin Botanical Garden prepared by the German painter and engraver Carl Leonhard Becker (Figs. 5 & 6).

Palmenzucht was followed by publications in a series of horticultural books under the title of *Gartenbau-Bibliothek* published by Karl Siegismund of Berlin. In the first of these, *Theorie der Gartenarbeiten* (Dammer 1899a), he referred to palms to demonstrate plant morphology. For example, he used the seeds of the Date palm (*Phoenix dactylifera*) to explain seed structure.

Dammer's interest in palms as decorative house plants was presented in *Zimmerblattpflanzen* (Dammer 1899b), a publication also in the *Gartenbau-Bibliothek* series. This book was a guide to the acquisition, propagation and culture of those house plants that were very popular in Germany at that time, including the palms for which he presented detailed information on those grown as potted specimens. A second revised edition was published in 1908 (Dammer 1908).

Zimmerblattpflanzen was followed by another in the *Gartenbau-Bibliothek* series, *Palmen* (Dammer 1900a). This was an introductory guide for home gardeners and hobbyists and provided simple species descriptions and cultivation information for palm species in 27 genera in cultivation in Europe.



5 (left). Illustration by Carl Leonhard Becker of *Phoenicophorium borsigianum* (as *P. sechellarum*) from *Palmenzucht und Palmenpflege*, opposite p. 72 (1897). 6 (right). Illustration by Carl Leonhard Becker of *Syagrus weddelliana* (as *Cocos weddelliana*) from *Palmenzucht und Palmenpflege*, opposite p. 102 (1897).

Articles of Popular Interest

Following his appointment at Berlin Botanical Garden, Dammer started publishing both popular interest articles and technical papers on palms. Those of popular interest began with an article on seedling morphology and germination rates of various tropical species. The first of these articles described the germination traits of *Roystonea regia* (Dammer 1895). This was followed by a report on an experiment in collaboration with Melchior Treub, director of the botanic gardens at Buitenzorg (now Kebun Raya Bogor, Indonesia), in which palm seeds were dispatched in various materials, such as moistened sawdust and charcoal, that kept the seeds hydrated during the five-week voyage to Berlin. The seeds were propagated in Berlin under different cleaning and heating regimes and considerable success was reported on numerous species (Dammer 1896). In a descriptive article on the St Petersburg Botanic Gardens, in which he described the various plant collections, he noted that the most worth seeing were the palms (Dammer 1897b).

Dammer continued with a series of articles directed at the amateur gardener and palm

collector and mainly published in the English language *Gardeners' Chronicle*. These included articles on nomenclatural issues concerning *Syagrus weddelliana* (Dammer 1898) and germination and seedling morphology of *Lodoicea maldivica*, *Roystonea regia* and *Livistona mariae* (Dammer 1899c, 1899d).

Further articles were published in the *Gardeners' Chronicle* under a series titled New Palms (Dammer 1901a, 1901b, 1901c, 1901d, 1901e, 1901f), dealing with *Chamaedorea glaucifolia*, *C. arenbergiana*, *Archontophoenix cunninghamiana*, *Asterogyne martiana*, *Reinhardtia simplex* and *Welfia georgii*. Dammer (1901g) also introduced novel taxa in this series including *Neonicholsonia*, *N. watsonii* and *N. georgei* (= *N. watsonii*). The series was concluded with articles under the title of Garden Palms and provided cultivation notes on rare and unusual species such as *Trachycarpus* spp., *Butia* spp. and *Rhapis* spp. (Dammer 1901h, 1901i). Subsequent articles in the *Gardeners' Chronicle* included information on nomenclature of the often-confused *Archontophoenix cunninghamiana* and *Ptychosperma elegans* (Dammer 1902b) and cultivation of *Pinanga coronata* (Dammer 1902c) and *Latania verschaaffeltii* (Dammer

1902d), all of which were illustrated by some of the first published photographs of those species.

Papers of Scientific Interest

Dammer also wrote a series of articles that were technically more advanced, and these were mostly published in journals associated with the Berlin Botanical Garden. These papers presented the results of research on germination and seedling growth of *Lodoicea maldivica* (Dammer 1900b) and fruit morphology of *Hyphaene coriacea* (Dammer 1900c).

From his work as a herbarium conservator, Dammer recognized the problems with poorly collected palm specimens, and he addressed this in a paper on how best to collect palms so that the optimum morphological information could be preserved (Dammer 1903a). He continued with articles of interest to amateur collectors although the technical depth was often greater than that of many of his popular interest articles previously published in the *Gardeners' Chronicle*. For example, he provided details on how to identify *Elaeis* spp. and *Attalea* spp. in tropical regions (Dammer 1903b). Dammer further delved into nomenclatural issues with a resolution of the validity of the name *Normanbya* (Dammer 1903c).

Acclimatization of *Trithrinax campestris* to the European climate was covered in a paper describing experiments at Berlin Botanical Garden (Dammer 1903d). The experiments involved protection of the root system from frost, rather than the foliage and other above ground parts. With respect to palms cultivated in Berlin Botanical Garden as well as specimens held in the herbarium, Dammer provided papers with the description of *Chamaedorea tuerckheimii* (as *Malortia tuerckheimii*) as a new species (Dammer 1904a), an investigation of the nomenclature of *Livistona mariae* (Dammer 1905a), the establishment of *Wendlandiella* as a new genus, with *W. gracilis* as the type species, the description of *Geonoma donnellsmithii* as a new species in the same paper (Dammer 1905b), and the establishment of *Kinetostigma* (= *Chamaedorea*) as a new genus and its species *K. adscendens* (= *C. adscendens*) (Dammer 1905c).

Regional Flora Treatments

New Guinea: The work of Schumann and Lauterbach (1901) attempted to summarize the known floristic work on New Guinea and

introduce new taxa from a number of expeditions and collectors, most of whom collected palms but were not specialists in the palm family. The treatment of the palms was partly co-authored by Dammer, and a new genus, *Dammera* (= *Licuala*) was named in his honor. Dammer was co-author of two species, *Licuala lauterbachii* and *L. montana*.

Central China: Other flora treatments at this time included Dammer's work on the palms of central China, which he undertook collaboratively with Ludwig Diels (Dammer & Diels 1901). The work was based on a number of large collections received in Berlin in 1899–1900 mediated through the Royal Frederick University, Oslo and Florence Herbarium, Italy. The treatment covered two genera and four species, although none was described as a new taxon.

New Caledonia: Prolific German botanist Rudolf Schlechter travelled widely at this time, visiting New Caledonia in late 1902. He made significant collections across many families. The specimens were mainly returned to Berlin, and although Schlechter prepared most of the taxonomic work himself and edited the final publication, some family accounts were prepared by other botanists. Dammer's (1906) treatment of the palms established two new genera (*Actinokentia* and *Nephrocarpus* (= *Basselinia*)) and described three new species (*Microkentia schlechteri* (= *Basselinia deplanchei*), *Actinokentia schlechteri* (= *Actinokentia divaricata*) and *Nephrocarpus schlechteri* (= *Basselinia pancheri*). In addition to the description of new taxa, Dammer provided a brief summary of those New Caledonian species previously described by other botanists.

Thailand, Koh Chang: Based on collections made by Johannes Schmidt of the Danish expedition of 1899–1900 to Koh Chang, Thailand, Dammer (1909) prepared an account of the palm flora of the island. Koh Chang lies off the south-east coast of Thailand. Dammer's determinations were based on specimens seen by him, and the treatment dealt with 11 genera and 12 species of palms although no new taxa were described by Dammer. Schmidt (1900) noted in the introduction to the series that contributions would be published gradually as the material was examined and named by various specialists. Dammer wrote of his treatment that he examined 20 collections, and that all were typical inhabitants of the tropical coastal regions.

German East Africa: In the first of his work on the palm flora of Germany's African colonies, Dammer (1901j) provided the treatment of the palms based on the collections of Walter Goetze made in German East Africa, present-day Burundi, Rwanda and the mainland portion of Tanzania, from the Uluguru Mountains. In this he named three new species, *Hyphaene wendlandii* (= *Hyphaene coriacea*), *Hyphaene goetzei* (= *Hyphaene petersiana*) and *Hyphaene aurantiaca* (= *Hyphaene petersiana*). A second flora treatment for German East Africa was based on Goetze's collections from the area between Lake Nyasa and Lake Rukwa, however, Dammer (1902e) treated only one species, *H. aurantiaca*, with an expanded description.

An additional two east African species, *Hyphaene bussei* (= *H. petersiana*) and *H. plagiocarpa* (= *H. petersiana*), were attributed to Dammer by Walter Carl Otto Busse in his work *Deutsch-Ostafrika*. Busse (1907) wrote that he had found numerous *Hyphaene* species in Ugogo that differ both in their habit and in the shape and structure of their fruit and seeds and, that in order not to compromise Dammer's ongoing work on the genus, provided only the habit characteristics of the two new species. However, these descriptions were enough to validate the names.

German South-West Africa: Following the receipt of about 1000 plant specimens in Berlin from the Kunene-Zambesi Expedition of Hugo Baum in German South-West Africa, present-day Namibia, in 1899–1900, Dammer (1903e) provided the treatment of the palms but treated only a single species, the widespread *Phoenix reclinata*.

The Americas: The greater part of Dammer's work on palms involved American taxa, with the description of five genera, 43 species and five varieties. The first species of American palms to be associated with Dammer (1901f), *Malortiea koschnyana* (= *Reinhardtia koschnyana*), was co-authored with Hermann Wendland. The protologue was based on both herbarium specimens and cultivated plants in Herrenhausen and Berlin. This collaboration was the precursor to a very productive association between the two palm botanists. See the section on *Chamaedorea* below for more on this theme.

In further research, Dammer (1901g) noted that the seedlings of palms show generic characters often at an early stage, and that a close study of palm seedlings was of the

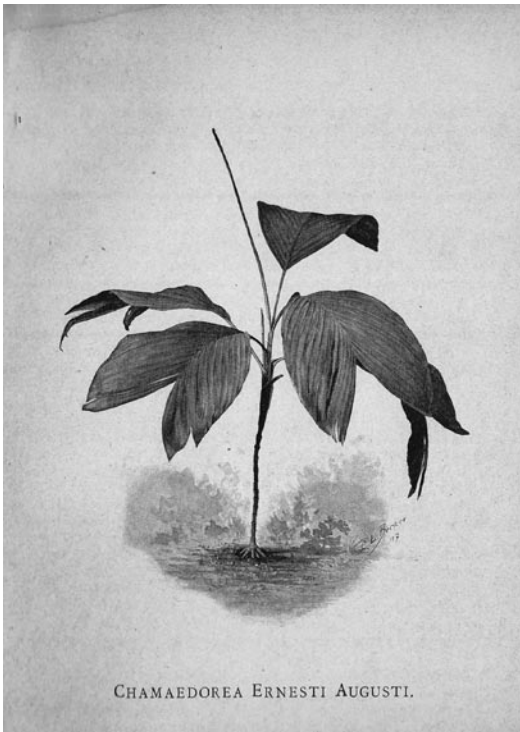
highest systematic value. Although Dammer arrived at this result through close observation, he made no subsequent attempts to formalize it in a publication.

Dammer's first regional flora treatment of American palms was based on collections made by Auguste François Marie Glaziou in Brazil. In this work, Dammer (1902f) described four new species, *Jessenia glazioviana* (= *Archontophoenix alexandrae*), *Cocos glazioviana* (= *Syagrus glazioviana*), *Cocos urbaniana* (= *Syagrus campestris*) and *Orbignya urbaniana* (= *Attalea eichleri*), and two new varieties, *Cocos graminifolia* var. *glazioviana* (= *Syagrus graminifolia* subsp. *glazioviana*) and *Diplothemium campestre* var. *glaziovii* (= *Allagoptera campestris*).

In a treatment that dealt with botanical collections made by the Swiss botanist Jacques Huber of the Amazonian flora, Dammer, according to Huber (1902), provided identifications and proposed the name of a new variety, *Astrocaryum humile* var. *microcarpa* (= *Bactris acanthocarpa* var. *exscapa*). Huber presented two papers on palms: the first dealt with specimens collected in the region of Furos de Breves in the state of Pará in 1900 and 1901. The second paper dealt with palms collected from the lower Ucayali River and Pampa del Sacramento in 1898. This paper dealt with 28 palm taxa, and Dammer provided identifications for many of the species though none was described as a new species (Huber 1906).

Dammer's contribution to the taxonomy of the American palm flora continued with his treatment of the palms of Puerto Rico in Ignatz Urban's *Symbolae Antillanae*. Urban's work on the Caribbean flora extended to nine volumes, between 1898 and 1928. The palms appeared in the fourth volume (Dammer & Urban 1903). In this, Dammer dealt with 17 species, describing *Inodes glauca* (= *Sabal causiarum*) as a new species.

The last regional flora treatment that Dammer was involved with was based on the collections made by naturalist Ernst Ule in Brazil and adjacent countries between 1883 and 1912. The treatments of the palms were presented in two parts, some eight years apart. The first part treated 26 taxa, of which 14 were described as new (Dammer 1907). The second part treated eight taxa, all of which were described as new (Dammer 1915). These papers proved to be the most significant taxonomic publications in Dammer's career with regards



7 (left). Illustration by Carl Leonhard Becker of *Chamaedorea ernesti-augusti* from *Palmenzucht und Palmenpflege*, opposite p. 44 (1897). 8 (right). Illustration by Carl Leonhard Becker of *Chamaedorea arenbergiana* from *Palmenzucht und Palmenpflege*, opposite p. 48 (1897).

to the description of novel taxa. The last of Dammer's palm taxonomy also involved specimens collected by Ule and the description of the new genus *Chelyocarpus* and its type species *C. ulei* (Dammer 1920).

Other publications: In addition to those taxa that Dammer personally described, some taxa based on his unpublished manuscripts were published by other botanists, either during his life or after his death. Amongst these were names published by Beccari (1910, 1921, 1924) and Burret (1929, 1930, 1932, 1933, 1934).

Chamaedorea

The most significant work by Dammer on American palms was concentrated on *Chamaedorea*, a large complex genus of about 107 species, mainly of small, understory palms distributed from central Mexico, through Central America to Brazil and Bolivia (Dransfield et al. 2008). Because of their attractiveness, ease of propagation and cultivation, species in the genus were among the most popular palms to be grown in European botanical gardens and homes in the late nineteenth century and early twentieth century (Schaedler 1875, Noter 1895, Robertson-Proschowsky 1896, Bellair and

Saint-Léger 1900, Lindemuth 1901, Habermann 1902, Loebner 1909).

The first mention of *Chamaedorea* by Dammer (1891) was in a paper describing the most effective methods for collecting plants for herbarium specimens. He noted how to collect and prepare leaves of *Chamaedorea* to best preserve their essential characters. Dammer's first taxonomic account of *Chamaedorea* and its species was in his book *Palmenzucht und Palmenpflege* (Dammer 1897a) (Figs. 7 & 8). This included a generic description and a systematic list of the 22 then recognized species and their synonyms.

In his book *Zimmerblattpflanzen*, Dammer (1899b) provided a brief description of *Chamaedorea* and referenced a small number of species. This was followed by the book *Palmen* that also provided brief descriptions of a small number of *Chamaedorea* species and detailed instructions on cultivation (Dammer 1900a). Dammer's developing expertise in cultivating palms was evident in articles on *Chamaedorea glaucifolia* (Dammer 1901a) and *C. arenbergiana* (Dammer 1901b). As with his books, these articles were intended to be read by gardeners and plant collectors.

Dammer's most significant taxonomic involvement with *Chamaedorea* was clearly related to his collaboration and friendship with the then world authority on palms Hermann Wendland of the Royal Gardens at Herrenhausen (Fig. 9).

Toward the end of his career, Wendland intended to prepare a monograph of *Chamaedorea*, a genus that had occupied a considerable amount of his taxonomic and horticultural energies (Hodel 1992). He had provided an early taxonomic account of *Chamaedorea* (Wendland 1854) and described new species regularly throughout his career (Dowe 2019).

According to Dammer, Wendland, who was in a state of deteriorating health, handed-over the unfinished manuscripts in the hope that the work would be completed (Dammer 1904b). Wendland also supplied many herbarium specimens to Berlin, which were therefore available for examination by Dammer and an essential resource in his taxonomic work. In anticipation of completing Wendland's taxonomic work on *Chamaedorea*, Dammer presented the first of a series of three articles in 1904, the year after Wendland's death, in the *Gardeners' Chronicle*, noting that much of the information was based on Wendland's unpublished manuscripts, which included proposed names and Latin descriptions of new species. Dammer structured his work mostly on the characteristics of leaves and leaf segments, somewhat in the form of a vegetative key. The first two articles treated the simple-leaved species. The first of these reported on the already published species (Dammer 1904b), whilst the second included descriptions of new species (Dammer 1904c). The third and final article dealt with the pinnate-leaved species, in which he discussed those with grouped leaflets, which were all established species, and those with regularly arranged leaflets, including both established and novel taxa (Dammer 1905d). Dammer noted that he also intended to complete a monograph of *Chamaedorea*, but this never happened. Dammer's three *Chamaedorea* articles in the *Gardeners' Chronicle* could be taken as an abridged monograph, as all the then known species were accounted for by allocation into groups based mostly on leaf morphology. Some of Dammer's new species names in this series of articles remained unresolved until Dowe and Hodel (2021) provided nomenclatural clarification.



9. Hermann Wendland, ca. 1890, carte de visite by F. Wunder Sohn. (Reproduced with permission of the Gottfried Wilhelm Leibniz Bibliothek, Hannover.)

Dammer (1915) continued describing new species of *Chamaedorea* later in his career including *C. boliviensis* (= *C. pinnatifrons*) and *C. depauperata* (= *C. pinnatifrons*). An additional species, *C. weberbaueri* (= *C. pinnatifrons*), was later published by Burret (1933) based on a name that Dammer appended to specimens at the Berlin Herbarium and included in an unpublished manuscript.

Conclusion

Dammer's contribution to the palms involved two distinct disciplines – taxonomy and horticulture. With regards to taxonomy, he introduced 68 novel names in the family. Despite this relatively large number, only 12 names are in current use. Most of the new names in *Chamaedorea* were largely the result of his collaboration with Hermann Wendland. In effect, Dammer's work strengthened Wendland's work on *Chamaedorea*, ensuring his taxonomic legacy continued even after his death in 1903.

With regard to Dammer's contribution to horticulture, his publications coincided with a heightened interest in palms, especially as

house plants and in specialist collections in botanic gardens. Dammer provided considerable horticultural advice on palms in his gardening books and articles in horticultural journals. He may be best remembered as a consistent, productive and accessible botanist with extensive technical ability, reinforced by a skill to communicate with both laypersons and professionals, especially in regards to his treasured palms.

Acknowledgments

I thank Raphael Dammer and Erika Gantert (*née* Dammer) for the use of the photograph of Udo Dammer and information on family history. Donald Hodel is thanked for comments and suggestions on an earlier draft of this paper. John Dransfield and Scott Zona are thanked for editorial refinements and improvements to this paper.

LITERATURE CITED

- ANONYMOUS. 1896. Program der im Sommer und Herbst 1896 im Königl. botanischen Museum und botanischen Garten abzuhaltenden Vorträge über Kolonial-botanik, Kultur und Verwertung tropischer Nutzpflanzen. Notizblatt des Königl. botanischen Gartens und Museums zu Berlin 1(4): 157–159.
- ANONYMOUS. 1904. Übersicht über die Tätigkeit der Botanischen Zentralstelle für die Kolonien am Botanischen Garten und Museum zu Berlin. Notizblatt des Königl. botanischen Gartens und Museums zu Berlin 4(33): 99–107.
- ANONYMOUS. 1906. Doctor Udo Dammer. The Gardeners' Chronicle, ser. 3, 27 Jan., 39(996): 57.
- ANONYMOUS. 1921. Botanischer Garten. Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem 8(71): 1–2.
- BECCARI, O. 1910. Studio monografico del genere "*Raphia*." Webbia 3: 37–130.
- BECCARI, O. 1921. Recensione delle palme del vecchio mondo appartenenti alla Tribù delle Corypheae. Webbia 5: 5–70.
- BECCARI, O. 1924. Palme della tribù Borasseae. Opera postuma. Curante Ugolino Martelli. Firenze.
- BELLAIR, G. AND L. SAINT-LÉGER. 1900. Les Plantes de Serre, Description, Culture, Emploi des Espèces Ornamentales ou Intéressantes Cultivées dans les Serres de l'Europe. Librairie Agricole, Paris.
- BURRET, M. 1929. Die Gattung *Hyospathe* Mart. Notizblatt des Königl. botanischen Gartens und Museums zu Berlin 10(98): 854–859.
- BURRET, M. 1930. Geonomeae Americanae. Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie 63(2): 123–270.
- BURRET, M. 1932. Palmae neogaeae. Notizblatt des Königl. botanischen Gartens und Museums zu Berlin-Dahlem 11(105): 313–327.
- BURRET, M. 1933. *Chamaedorea* Willd. und verwandte Palmengattungen. Notizblatt des Königl. botanischen Gartens und Museums zu Berlin-Dahlem 11(108): 724–768.
- BURRET, M. 1934. Die Palmengattung *Astrocaryum* G.F.W. Meyer. Repertorium Specierum Novarum Regni Vegetabilis 35: 114–158.
- BUSSE, W. 1907. Deutsch-Ostafrika. I. Zentrales Steppengebiet. Vegetationsbilder, ser. 5, 7: Tafel 40–45.
- DAMMER, R. 2020. Genealogische Forschung. <https://homepage.ruhr-uni-bochum.de/Raphael.Dammer/>, accessed April-June 2020.
- DAMMER, U. 1888. Beiträge zur Kenntniß der vegetativen Organe von *Limnobia stolonifera* Griseb. nebst einigen Betrachtungen über die phylogenetische Dignität von *Diclinia* und Hermaphroditismus. Doctoral thesis, handwritten and velvet-bound. Private family collection.
- DAMMER, U. 1891. Handbuch für Pflanzensammler. Ferdinand Enke, Stuttgart.
- DAMMER, U. 1895. Seedlings of *Oreodoxa regia*. The Gardeners' Chronicle, ser. 3, 23 Feb., 17(426): 239–240.
- DAMMER, U. 1896. Über verpackung, versand und aussaat der Palmensamen. Notizblatt des Königl. botanischen Gartens und Museums zu Berlin 1(6): 190–192.
- DAMMER, U. 1897a. Palmenzucht und Palmenpflege: Anweisung zur Anzucht und Pflege der Palmen. Trowitzsch and Sohn, Frankfurt a. Oder.
- DAMMER, U. 1897b. Ueber den Gartenbau in Russland. Gartenflora 46: 40–42, 98–99.

- DAMMER, U. 1898. What is *Cocos weddelliana*, Hort.? The Gardeners' Chronicle, ser. 3, 9 April, 23: 221.
- DAMMER, U. 1899a. Theorie der Gartenarbeiten. Karl Siegismund, Berlin.
- DAMMER, U. 1899b. Zimmerblattpflanzen. 1st Edition. Gartenbau-Bibliothek Bd. 2. Karl Siegismund, Berlin.
- DAMMER, U. 1899c. *Lodoicea seychellarum* (the double-cocoa-nut) at Berlin. The Gardeners' Chronicle, ser. 3, 5 Nov., 26(674): 394.
- DAMMER, U. 1899d. Notizen über einige Pflanzen des Berliner botan. Gartens. Notizblatt des Königl. Botanischen Gartens und Museums zu Berlin 2(19): 366–368.
- DAMMER, U. 1900a. Palmen. Karl Siegismund, Berlin.
- DAMMER, U. 1900b. Über die Keimung der *Lodoicea sechellarum* Labill. Notizblatt des Königl. Botanischen Gartens und Museums zu Berlin 3(22): 32–33.
- DAMMER, U. 1900c. Über *Hyphaene schatan* Bojer. Notizblatt des Königl. Botanischen Gartens und Museums zu Berlin 3(22): 34–35.
- DAMMER, U. 1901a. *Chamaedorea glaucifolia*. The Gardeners' Chronicle, ser. 3, 26 Jan., 29(735): 54.
- DAMMER, U. 1901b. *Chamaedorea arenbergiana*. The Gardeners' Chronicle, ser. 3, 2 Feb., 29(736): 69–70.
- DAMMER, U. 1901c. New or noteworthy plants. *Archontophoenix cunninghami* and *A. veitchii*. The Gardeners' Chronicle, ser. 3, 9 Feb., 29(736): 85.
- DAMMER, U. 1901d. New palms. *Asterogyne martiana*, Wdl. The Gardeners' Chronicle, ser. 3, 6 April, 29(745): 217.
- DAMMER, U. 1901e. New palms. (concluded from p. 217) *Malortia simplex*, Wendland. The Gardeners' Chronicle, ser. 3, 20 April, 29(747): 247–248.
- DAMMER, U. 1901f. New and noteworthy plants. *Welfia georgii* (Wendland). The Gardeners' Chronicle, ser. 3, 1 June, 29(753): 341.
- DAMMER, U. 1901g. *Neonicholsonia* Dammer. A new genus of palms from Central America. The Gardeners' Chronicle, ser. 3, 7 Sept. 30(767): 178–179.
- DAMMER, U. 1901h. Garden Palms. The Gardeners' Chronicle, ser. 3, 23 Nov., 30(778): 370–371.
- DAMMER, U. 1901i. Garden palms. The Gardeners' Chronicle, ser. 3, 7 Dec., 30(780): 406.
- DAMMER, U. 1901j. *Palmae*. Botanische Jahrbücher für Systematik, Pflanzen-geschichte und Pflanzengeographie 28: 353–355.
- DAMMER, U. 1902a. Bemerkung. Botanische Jahrbücher für Systematik, Pflanzen-geschichte und Pflanzengeographie 31(70): 25.
- DAMMER, U. 1902b. Three palms often wrongly named. The Gardeners' Chronicle, ser. 3, 11 Jan., 31(785): 18–20.
- DAMMER, U. 1902c. *Pinanga kuhlii*, Blume. (Supplementary illustration.). The Gardeners' Chronicle, ser. 3, 8 Feb., 31(789): 97–98.
- DAMMER, U. 1902d. Berlin. *Latania verschaffelti*, Lem. &c. The Gardeners' Chronicle, ser. 3, 1 March, 31(792): 139–140.
- DAMMER, U. 1902e. *Palmae*. Botanische Jahrbücher für Systematik, Pflanzen-geschichte und Pflanzengeographie 30: 267.
- DAMMER, U. 1902f. *Palmae*. Botanische Jahrbücher für Systematik, Pflanzen-geschichte und Pflanzengeographie 31(4/5): 21–23.
- DAMMER, U. 1903a. Sammeln von Palmen. Notizblatt des Königl. botanischen Gartens und Museums zu Berlin 4(31): 59–61.
- DAMMER, U. 1903b. L'identite botanique du Coquito de aceite. Journal d'Agriculture tropicale 20: 61.
- DAMMER, U. 1903c. *Normanbya* F. v. Mueller. Berichte der Deutschen Botanischen Gesellschaft 21: 91–96.
- DAMMER, U. 1903d. *Trithrinax campestris* Drude et Grisebach. Mitteilungen der Deutschen dendrologischen gesellschaft 12: 95–96.
- DAMMER, U. 1903e. *Palmae*. In: Baum, H. (ed.), Kunene-Sambesi-expedition, p. 180. E.S. Mittler and Sohn, Berlin.
- DAMMER, U. 1904a. Eine neue Palme aus Guatemala. Notizblatt des Königl. Botanischen Gartens und Museums zu Berlin 4(35): 157–158.

- DAMMER, U. 1904b. The species of *Chamaedorea* with simple leaves. The Gardeners' Chronicle, ser. 3, 17 Sept., 36(925): 202.
- DAMMER, U. 1904c. The species of *Chamaedorea* with simple leaves (continued from p. 202.). The Gardeners' Chronicle, ser. 3, 1 Oct., 36(927): 245–246.
- DAMMER, U. 1905a. Home correspondence. *Livistona mariae*. The Gardeners' Chronicle, ser. 3, 21 Oct., 38(982): 297.
- DAMMER, U. 1905b. Zwei neue amerikanische Palmen. Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie 36: 31–33.
- DAMMER, U. 1905c. *Kinetostigma* Dammer Genus novum Palmarum guatemalense. Notizblatt des Königl. Botanischen Gartens und Museums zu Berlin 4(36): 171–173.
- DAMMER, U. 1905d. Species of *Chamaedorea* with pinnate leaves. The Gardeners' Chronicle, ser. 3, 15 July, 38(968): 42–44.
- DAMMER, U. 1906. Palmae. Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie 39: 20–22.
- DAMMER, U. 1907. Palmae. Verhandlungen des botanischen Vereins der Provinz Brandenburg 48: 118–129.
- DAMMER, U. 1908. Zimmerblattpflanzen. Second Edition. Gartenbau-Bibliothek, Band. 5. Karl Siegmund, Berlin.
- DAMMER, U. 1909. Palmae. Botanisk Tidsskrift 29: 97–100.
- DAMMER, U. 1915. Palmae. Notizblatt des Königl. Botanischen Gartens und Museums zu Berlin 6(59): 261–268.
- DAMMER, U. 1920. *Chelyocarpus* Dammer nov. gen. Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem 7(68): 388–395.
- DAMMER, U. AND L. DIELS. 1901. Palmae. Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie 29: 233.
- DAMMER, U. AND I. URBAN. 1903. Palmae. Symbolae Antillanae, seu, Fundamenta florae Indiae Occidentalis 4: 126–131.
- DEGENER, H.A.L. 1908. Dammer, C.L. Udo, Dr. phil., Prof. We ist's? H.A. Degener, Leipzig.
- DOWE, J.L., 2019. Wendland's Palms. Hermann Wendland (1825–1903) of Herrenhausen Gardens, Hannover: his contribution to the taxonomy and horticulture of the palms (Arecaceae). Englera 36: 3–137.
- DOWE, J.L. AND D.R. HODEL. (2021). Taxonomy and nomenclature of four unresolved names published by Udo Dammer in the genus *Chamaedorea* (Arecaceae). Candollea 76(1): 93–98.
- DRANSFIELD, J., N.W. UHL, C.B. ASMUSSEN, W.J. BAKER, M.M. HARLEY AND C.E. LEWIS. 2008. Genera Palmarum: the Evolution and Classification of Palms. Kew Publishing, Kew.
- ENGLER, A. 1909. Die Aufgaben großer botanischer Gärten und Museen. Der Königliche Botanische Garten und das Königliche Botanische Museum zu Dahlem, pp. 1–9. Horn and Raasch, Berlin.
- ENGLER, A., I. URBAN, A. GÄRCKE, K. SCHUMANN, G. HIERONYMUS, P. HENNINGS, M. GÜRKE, U. DAMMER, G. LINDAU, E. GILG, H. HARMS, P. GRAEBNER, G. VOLKENS AND L. DIELS. 1897. Nomenklaturregeln für die Beamten des Königlichen Botanischen Gartens und Museums zu Berlin. Gartenflora 46: 304–308.
- ENGLER, A., I. URBAN, K. SCHUMANN, P. HENNINGS, G. HIERONYMUS, M. GÜRKE, U. DAMMER, G. LINDAU, E. GILG, P. GRAEBNER, R. PILGER, W. RUHLAND, H. WINKLER AND H. HARMS. 1902. Zusätze zu den Berliner Nomenklatur-Regeln. Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie 31(70): 24–25.
- GOVAERTS, R., J. DRANSFIELD, S. ZONA, D.R. HODEL AND A. HENDERSON. 2020. World Checklist of Arecaceae. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; <http://wcsp.science.kew.org>. Accessed May–July 2020.
- GREBING, H. 1957. Dammer, Otto. Neue Deutsche Biographie 3: 501. Duncker and Humblot, Berlin.
- HABERMANN, W. 1902. Kreuzung von Chamaedoreen. Gartenflora 51: 70–72.
- HARMS, H. 1922. Tagesordnung der Sitzungen im Geschäftsjahr 1920/21. Verhandlungen des Botanischen Vereins der Provinz Brandenburg 64: 136–138.
- HODEL, D.R. 1992. *Chamaedorea* Palms: the Species and their Cultivation. International Palm Society, Lawrence, Kansas.
- HUBER, J. 1902. Materiaes para a Flora Amazonica. V. Plantas vasculares colligidas ou observadas na região dos furos de breves

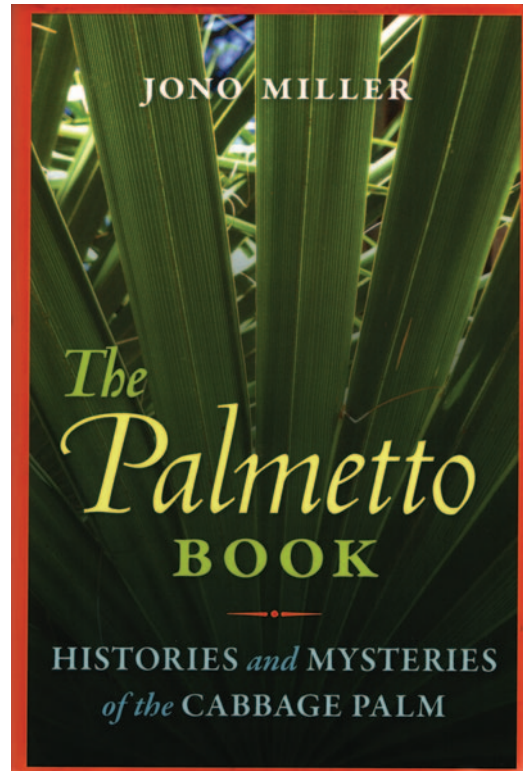
- em 1900 e 1901. Boletim do Museu Paraense de Historia Natural e Ethnographia (Museu Goeldi) 3: 400–446.
- HUBER, J. 1906. Materiaes para a Flora Amazonica. VI. Plantas vasculares colligidas e observadas no baixo Ucayali e no Pampa dei Sacramento, nos mezes de outubro a dezembro de 1898. Boletim do Museu Paraense de Historia Natural e Ethnographia (Museu Goeldi) 4: 510–619.
- LINDEMUTH, H. 1901. *Chamaedorea*-Arten als Zimmerpflanzen. Gartenflora 50: 285–286.
- LOEBNER, M. 1909. Palmen. Die Gartenwelt 13(14): 159–160.
- NOTER, R. DE. 1895. Les Palmiers de Serre Froide, leur Culture dans la Zone Méditerranéenne et dans le Nord de l'Europe. Doin, Paris.
- ROBERTSON-PROSCHOWSKY, A. 1896. Les Palmiers de la Côte d'Azur leur résistance au froid (Suite et fin). Bulletin de la Société nationale d'acclimatation de France 54: 56–67.
- ROBINSON, B.L. 1897. The official nomenclature of the Royal Botanical Garden and Museum of Berlin. Botanical Gazette 24: 107–110.
- SAATHOFF, S. 1920. Dammer, Udo. Die Gartenwelt 24(49): 472.
- SCHAEDTLER, G. 1875. Die Palmen des Königl. Berggartens zu Herrenhausen bei Hannover. Hamburger Garten- und Blumenzeitung 31: 113–115, 155–156.
- SCHMIDT, J. 1900. Flora of Koh Chang. Contributions to the knowledge of the vegetation in the Gulf of Siam. Part I. Introductory. Botanisk Tidsskrift 23: 1–5.
- SCHUMANN, K.M. AND C.A.G. LAUTERBACH. 1901. Palmae. Die Flora der Deutschen Schutzgebiete in der Südsee, pp. 199–209. Gebrüder Borntraeger, Leipzig.
- URBAN, I. 1909. Kurze geschichte der Entwicklung der Sammlungen. Der Königliche Botanische Garten und das Königliche Botanische Museum zu Dahlem, pp. 11–30. Horn and Raasch, Berlin.
- WENDLAND, H. 1854. Index Palmarum, Cyclantheorum, Pandanearum, Cycadeorum, quae in Hortis Europaeis Coluntur, Synonymis Gravioribus Interpositis. Hahn, Hannover.
- ZEPERNICK, B. AND F.K. TIMLER. 1979. Grundlagen zur 300jährigen Geschichte des Berliner Botanischen Gartens. Englera 1: 1–302.

PALM LITERATURE

THE PALMETTO BOOK: THE HISTORIES AND MYSTERIES OF THE CABBAGE PALM – Jono Miller. University Press of Florida. 2021. Hardcover. Pp 312, halftone illustrations. ISBN 13: 97808130-66806. US\$28.00.

You might think it odd that an entire book could be devoted to one species of palm, not one of the Big Three commercial palms (African oil palm, coconut and date). *The Palmetto Book* is focused entirely on *Sabal palmetto*, known variously in the Southeastern US as cabbage palm, palmetto, or just sabal palm. Even if you do not start out admiring the cabbage palm, you cannot help but be caught up in Miller's relentless enthusiasm for this humble stalwart. Equal parts natural history, biography, memoir and adventure, this is a modern account of the many ways that the palmetto is woven into the socioeconomic tapestry of the Southeast. This is the *Eat, Pray, Love* of palms.

Miller's eclectic work touches on the palmetto in regional folk art and the paintings of Winslow Homer, the cuisine of early Florida settlers and a modern "swamp cabbage" festival, and appearances of the palm in tourism brochures and images sent beyond our solar system on the Voyager spacecrafts. He looks at palm logs used for fortification and homebuilding, leaves used for traditional sweet grass baskets and tacky tourist souvenirs, and fibers used as nesting material, cordage and brushes. He recounts tagging along with surveyors looking for "witness trees" and with Mexican laborers cutting thatch for "genuine" Seminole chickees (the open-sided, thatched structure that usually houses a pool-side bar behind an expensive Florida home). He takes the reader along on his quest to find the northernmost and westernmost naturally occurring palmettos, and he discusses the subsidence of land that is killing palmettos in northwestern peninsular Florida and the Lethal Bronzing disease that is killing them all over the state.



Throughout, Miller's writing is colorful, deft and lucid. He takes the time to get beneath the surface of the life and lore of his subject. The reader is carried along on a raft of interviews, researched facts and first-rate storytelling. If I have any criticism of the book, it is that some of halftone illustrations do not rise to the quality of the prose. Whether the printing process was to blame or the illustrations themselves were not up to snuff, I cannot say, but do not let this minor criticism prevent you from enjoying Miller's unique perspectives on *Sabal palmetto*. Miller's storytelling carries the day, in spite of the illustrations. Read this book and you will come away with a new (or renewed) appreciation for this under-rated palm.

SCOTT ZONA

Editors' Note: Jono Miller has a blog that highlights topics in the book at <http://palmettobook.blog>.

Klasow Valley, West Papua, Indonesia and its Palms

GREGG HAMANN¹

This extended photo feature records the palms seen on a visit to a valley on the northern coast of the Bird's Head peninsula, on the island of New Guinea.

Untouched rainforest is perhaps one of the most precious resources remaining on earth today. This is especially true for those of us who are members of the International Palm Society and who therefore care deeply for the amazing biodiversity that these rare places have to offer. Outside of a few common or cultivated species, palms rarely thrive in secondary forests and never with the same level of diversity that exists in primary forests.

Like almost no other habitat, rainforests around the world are under tremendous economic pressure. They are being cut down at a dizzying rate for their valuable lumber, to make way for cattle ranching or for crops ranging from soybeans and citrus to coffee and palm oil... and although in some countries some prime areas have been set aside as national parks, not everything can be protected in that way. Huge swathes of rainforest are in fact still in private hands, controlled by various tribes and indigenous people groups around the tropical world.

This is why one of the best things that we can do as lovers of palms is to support the preservation of private rainforests... by visiting them. And this is why, after a scuba diving trip to the Rajah Ampat ("Four Kings") area of

northwest New Guinea in late January 2020, we added on a few days in the Klasow Valley of West Papua, Indonesia.

The Klasow Valley is located about two hours east of Sorong, Indonesia on a well-maintained gravel road. Of course, well-maintained roads are often the enemy of pristine forest. When heavy equipment is easily imported and forest products are easily exported, the temptation to plunder the forest rises exponentially... and many or most of the tribal areas in between Sorong and Klasow have succumbed to the easy money of extracted hardwood and leveled farmland.

But not Klasow. The tribal council – and especially the Chief – have decided instead to try and capitalize on the lure of eco-tourism that comes from the long-term view of environmental conservation and preserving their rainforest rather than cutting it down. And it seems to be paying off.

The village has banded together and built several concrete block houses for tourists (Fig. 1), the height of luxury for the average villager, with indoor plumbing and louvred glass windows – but perhaps a little on the spare side for the average tourist. We slept on the floor and bathed with buckets! But it was well worth it.

The main attractions in this area are the birds – especially, four species of colorful birds of

¹11123 Valley Lights Dr.
El Cajon, California 92020 USA



1. Tourist accommodations in the village of Klasow.

paradise, often so flamboyant and heavily feathered that they have difficulty flying... and so following the crepuscular schedule of the birds, the standard touristic schedule began at first light (Fig. 2). In just three days, we saw more than fifty species of birds, many of them showstoppers anywhere else in the world.

We would tumble out of bed at 5:00 a.m., down a quick cup of tea and a few biscuits and head out for a several-mile walk out into the forest. The guides were a bit puzzled by my propensity to pause periodically to investigate an interesting understory palm – but as time wore on, they embraced the difference and began to enjoy the fact that I was interested in something other than birds.

The first morning, we set out on a lowland walk into the valley's bottomland – and the palm flora was outstanding; everywhere I looked there was another lowland palm, perhaps the most common being a perfect, windmill shaped *Licuala* species (Fig. 3). Another regular was *Metroxylon sagu* (Fig. 4), a huge, spiny-trunked, swamp dwelling, hapaxanthic palm that has been a major food source for the local people for millennia. To harvest the starch, the indigenous peoples cut down the trunks, scrape the pith out of the

2. Tourists (and the author, in light-colored clothes) photographing the amazing birds in the forest around the village.





1. An unidentified species of *Licuala*.

center and bake it into pancakes or boil it into gruel; however, sago is an almost tasteless food source reserved in most areas today for times of famine (such as the great drought of 2015).

But the *Metroxylon* and *Licuala* were joined by huge, squat *Arenga pinnata*, an orange crown-shafted palm, later identified as probably being *Hydriastele variabilis* (Fig. 5), an acaulescent,



4. *Metroxylon sagu*.

entire-leafed *Calyptrocalyx* (Fig. 6) and even a beautiful *Calyptrocalyx* species with red-emergent leaves (Fig. 7). Around 8 a.m., the palm excitement was enhanced by the appearance of four-wired birds of paradises flitting about in the canopy above us.



5. *Hydriastele variabilis*.

After an afternoon siesta, we spent the evening wandering around within a few blocks of the village carrying binoculars and “collecting”

bird sightings. Shining in the golden evening light were several kinds of palms emerging from the canopy, including *Cyrtostachys* species



6 (top). A *Calypstrocalyx* with bifid leaves. 7 (bottom). Another *Calypstrocalyx* with a red new leaf.



8 (top). A *Cyrtostachys* species. 9 (bottom). The diminutive *Licuala telifera*.



10. *Licuala telifera* resembling a small *Rhapis* species.

(Fig. 8) *Korthalsia brassii* and *Calamus aruensis*. The experience was enhanced by flocks of sulfur-crested cockatoos and pairs of giant hornbills flying back to their roosting spots for the night.

The second day, we rose early for an assault on the ridge behind the village in search of the Lesser Bird of Paradise, which belies its name with the most impressive plumage of all the birds in Klasow. The higher ground



11 (top) *Rhopaloblaste* juveniles. 12 (bottom). *Areca macrocalyx*.

produced an entirely new suite of palms, including a *Caryota* species, a small *Licuala telifera* that looked like a New World *Reinhardtia* or perhaps a robust *Rhapis* (Figs. 9 & 10), abundant young plants of *Rhopaloblaste*

species (probably *R. ledermanniana*) (Fig. 11) with apparently long lived acaulescent stages, *Areca macrocalyx* (Fig. 12) and amazing, mop-like, mostly bifid palms that reminded me of some of the more exotic lowland *Dypsis* of



13. *Sommieria leucophylla* with characteristically bifid leaves.

Madagascar. These included *Sommieria leucophylla* (Figs. 13 & 14) and *Calyptrocalyx* species (Fig. 15).

At the top of the ridge, the palms began to thin, replaced for a while by huge specimens of *Cycas* species and understory examples of



14. *Sommieria leucophylla*.

Cycas undulatifolia. At the top of the ridge, the canopy thinned out and we were able to catch the undulating flight of the golden-tailed Lesser Bird of Paradise, a fitting cap to our time in Klasow.

The stark reality is that all or most of these species – flora and fauna - have completely disappeared from the surrounding districts of West Papua. These areas have for the most part been cleared or logged into oblivion.



15. An unidentified *Calypstrocalyx* species.

The world needs more rainforest guardians like the people of Klasow... people who are willing to set aside the siren call of short-term gain for the long-term treasure of rich rainforest. And one of the best ways that we can

encourage these wise ones on their chosen course is by sharing their world and visiting them in the midst of the habitat they are trying so mightily to preserve.

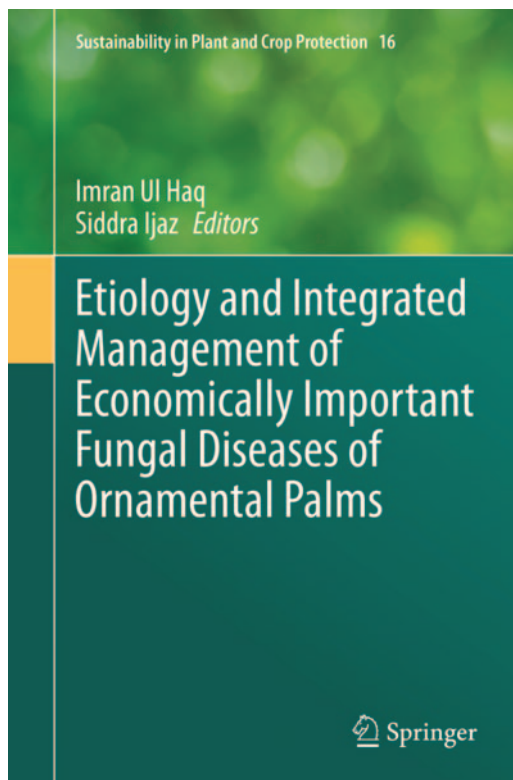
PALM LITERATURE

ETIOLOGY AND INTEGRATED MANAGEMENT OF ECONOMICALLY IMPORTANT FUNGAL DISEASES OF ORNAMENTAL PALMS – Imran Ul Haq and Siddra Ija, (Editors). 2020. Springer. ISBN 978-3-030-56330-1. eBook. €128.39 (ca. US\$154.32). Also available in hardcover.

A scientific book should provide a concise summary of scientific research on the topic chosen. This book does not. Since the book's publisher is Springer, one expects the topic to have an international application. This book fails on that point also. As one begins to peruse the book, it is not clear what the book topic really is and who is the audience target. Sadly, it also quickly becomes apparent that wrong information is provided or the information is provided out of context and therefore not useful.

While the book title clearly states “ornamental palms,” the authors include information on “false palms” (their term) such as *Cycas revoluta*, *Ravenala madagascariensis*, *Beaucarnea recurvata* and *Ensete ventricosum*. The entire third section of the book is devoted to “false palms.” These plants represent four different plant families, none of which are Arecaceae.

Again, despite the title name, the first three chapters deal with topics other than fungal diseases, such as economics, biology, taxonomy, ecology and cultivation of ornamental palms. Material is often repeated from one chapter to the next. The first chapter's title indicates the primary topic will be the economic importance of palms, but most of the chapter discusses the importance of floriculture in general (which, for palms, means potted plants), palm biology, pruning palms (some of which is incorrect information) and then proceeds to discuss 20 palm species and three “false palm” species relative to origin, botany, propagation and, finally, economic importance. Again, incorrect information is provided, such as stating *Cocos nucifera* is native to America and *Phoenix canariensis* is a clustering palm. The second chapter overlaps with the first chapter and the



third chapter rehashes information provided in the previous chapters but without discussing particular palms. Unfortunately, overlapping information among chapters continues!

The second portion of the book does finally provide information about fungal diseases of palms. However, the first chapter, titled “Fungi: Cynosure of Ornamental Palms Diseases,” spends a significant portion discussing Lethal Yellowing, a disease caused by a phytoplasma (a specialized bacterium). The fungal disease information overall is not provided in the proper context, nor is it trustworthy. For example, the authors lump all *Fusarium* pathogens under the disease name Fusarium wilt and the only *Ganoderma* species discussed is *G. zonatum*, which is limited to Florida and coastal regions of the southeastern USA but never stated. It is not clear why certain pathogens were chosen for discussion and others were not.

The next ten chapters begin the chaotic review of diseases associated with 14 ornamental palm species, but some chapters spend more time discussing propagation and overall palm management than specific diseases. Again, it is not clear why these 14 palms were selected.

One chapter is devoted to *Phoenix dactylifera*, but more from the perspective of date production, while there is no chapter on *Phoenix canariensis*, perhaps the most widely grown ornamental palm in the world. Because certain diseases are associated with multiple palms, the disease information naturally overlaps. As with the “overview” chapter on fungal diseases, the reader would need to check the original source of the information to determine just how accurate it is.

Overall, there are so many errors in the book that it is not worth the purchase price and is not a useful addition to a palm enthusiast's book collection.

MONICA ELLIOTT
Emeritus Professor
University of Florida/IFAS

***Ceroxylon ravenii*, a New Acaulescent Palm from Cordillera Azul National Park, Peru**

ISABEL VILLALBA^{1,3} AND LUIS VALENZUELA^{2,3}

As part of the project "Diversity of the flora and its relationships with the soil in the wilderness zone of Cordillera Azul National Park," led by the Missouri Botanical Garden in Peru, expeditions were carried out that allowed the collection of mature individuals of *Ceroxylon ravenii* Villalba & L. Valenz. in a remote area of pre-montane forest at an altitude of 1240 m.

This species is unique within the genus due to its acaulescent habit. It has been named in honor of Dr. Peter Raven, the President Emeritus of Missouri Botanical Garden, for his great work as a botanist and promoter of conservation and research in Peru.

In addition to its acaulescent habit, we can mention that the length of the peduncle in the pistillate inflorescence (50–60 cm), the large size of the hastula-like projection (1–3.1 cm), as well as the dimensions of the smooth fruit (2.3–2.4 cm) stand out among the main diagnostic characteristics of the palm. The full description of the species can be reviewed at the following link:

<https://www.biotaxa.org/Phytotaxa/article/view/phytotaxa.483.3.6>

At the moment, the only known population of the palm is restricted to the place where it was discovered, in the wilderness zone of the Cordillera Azul National Park, which is almost inaccessible and is located at a great distance from the surrounding populations, apparently providing good protection to the species.

The discovery of *Ceroxylon ravenii* poses new questions regarding its biology, ecology and the diversification of the genus *Ceroxylon* in the Andes.

This finding highlights the importance of the development of scientific research in the field of protected natural areas of Peru since it contributes to the generation of fundamental information for decision-making about the conservation of biodiversity and allows these spaces to be responsibly managed.

The discovery of *Ceroxylon ravenii* was possible thanks to the support of institutions interested

¹i.villalba.v@gmail.com

²luis_gin@yahoo.es

³Jardín Botánico de Missouri – Perú
Prolongación Bolognesi Mz. E Lt 6, Oxapampa,
Pasco, Peru



1. Cordillera Azul National Park, The habit of *Ceroxylon ravenii*.

in research, such as the Missouri Botanical Garden in Peru, the Center for the Conservation and Sustainable Development of the Missouri Botanical Garden in the USA, as

well as the Servicio Nacional de Áreas Naturales Protegidas del Perú (SERNANP).



2. An adult plant bearing fruits.

3 (p. 98). Young, unexpanded inflorescence.

4 (p. 99). Fully expanded inflorescence.

5 (p. 100). Fruits beginning to mature.







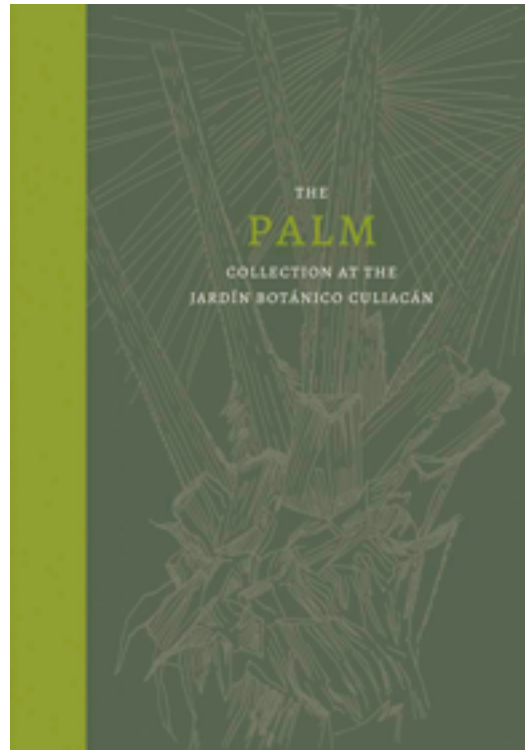
PALM LITERATURE

THE PALM COLLECTION AT THE JARDÍN BOTÁNICO CULIACÁN – Clementina Equihua and Scott Zona (Editors). Turner/CIAC. 2021. Hardcover. ISBN 8417866299. Pp 324, numerous color photos & illustrations + 1 map.

This compendium beautifully blends natural science and botanical art, rendering a provocative invitation for the appreciation of plant collections and citizen science. Plant lovers, professional or amateur, interested in these topics would enjoy this book. It aims to illustrate one of the best and largest palm collections in Mexico, the National Palm Collection, held by the Jardín Botánico Culiacán (JBC), in Culiacán, Sinaloa, Mexico. The JBC's Palmetum encompasses an assortment of more than 100 palm species, primarily Mexican (includes ca. 60% of the ca. 100 species in the country), many of these listed as endangered and/or rescued from deforested areas in various states, but it also includes representatives from other regions of the world. Because of their diverse shapes and statures, some palms are purposely used to enhance the dynamics and emphasize specific features of the architectural landscape of the botanical garden, but other more delicate species are grown in protected spaces, such as the nurseries and greenhouses.

The book starts with a foreword by Agustín Coppel Lunken and then a chapter on the garden, The Jardín Botánico Culiacán by Carlos Murillo Michel. Following this is An Introduction to the Palm Family by Scott Zona and Clementina Equihua. The next chapter discusses The National Palm Collection: Preservation at the Jardín Botánico Culiacán by Erika Pagaza Calderón, and a detailed account of The Palm Collection at the Jardín Botánico Culiacán by Miguel Ángel García Bielma. Scott Zona and Clementina Equihua discuss What is a Palm? Following this there is a catalogue of mature palms on display and palms in the nursery. There is a glossary. The fine photographs were taken by Enrique Macías Martínez.

The book has several strengths. Foremost, it is written in a friendly, inviting style, with good organization and flow of the different



components. The introductory approach to the Palm family as the provider of the tropics is good and summarizes the historical and numerous ethnobotanical aspects of its plants in diverse cultures. It also carries an effective presentation of 104 palm species residing in the collection of the JBC, 85 of these on display in the grounds and 19 more kept in the nursery. The scientific and common names and general information concerning features, area of origin/distribution, ecology, adaptations, uses, conservation status according to the Red List of the International Union for Conservation of Nature and the Mexican Secretariat of Environment and Natural Resources (SEMARNAT), and the historical journey of each species to the JBC is kept short and easy, and it is combined with abundant pictures of excellent quality. It is, in fact, a storytelling about individual species, and whenever possible, the size of every palm species is depicted with photos, artistic botanical drawings or close-ups showing attractive perspectives of the arrangement and design of plant parts. This book also stresses the significant relationship and co-dependency between some animal and plant species, i.e., lemurs and palms, for food and seed dispersal, respectively. The role of palms creating natural habitats that safeguard wild animals in

conjunction with the negative impact of seed-eating introduced animals that decimate palm reproduction is also addressed.

The book is 324 pages long and includes a massive assortment of 237 color photos, including plates with several pictures by Enrique Macías Martínez. As a bonus, 19 botanical illustrations by Sofía Taboas, a talented Mexican contemporary artist and art professor at the Escuela Nacional de Pintura, Escultura y Grabado “La Esmeralda” in Mexico (<https://www.esmeralda.edu.mx/sofia-taboas>) are also included. Her work is also worth mentioning because it focuses on the development of natural spaces depicting plants. Some of her art is exhibited at the Kurimanzutto Gallery in Mexico City (<https://www.kurimanzutto.com/artists/sofia-taboas#tab:slideshow>). The book comes with a convenient, supporting glossary with the meaning of botanical terms used in addition to an integrated complementary map of the JCB's grounds. This map contains a numerical code for each palm species, which, in combination with the position of the most prominent landmarks and pieces of art featured around the garden, helps the visitors orient themselves and locate the specific palms on the grounds.

As mentioned before, the approach to the overall description of the Palm family is refreshing and straightforward with a systematic account about the distinctive characters of these plants in conjunction with the phylogenetic position and relationships with other species in the plant kingdom. This chapter contains one of the most compelling discussions I have ever read about whether palms are trees or not. The interesting comparison between an Asian rattan with the longest single stem (544 ft) and Californian sequoia (377 ft) is striking! The only feature missing in the book is an index listing the palm species discussed, which would have been a beneficial navigation aid for the reader.

This book deserves a place in the contemporary literature because 1) of its approach to the preservation of palm diversity and 2) the way it highlights the central role of botanical gardens in managing biological diversity and fostering appreciation for nature. Another significant contribution is that the book meets the goals in describing the native and introduced palm species and the current status of knowledge of the National Palm Collection, which has a profound emotive meaning for the founders and personnel of the JBC. This book is basically a celebration to recognize their many years of work and dedication and the foundational role of the JBC in disseminating biodiversity conservation and public education at the local, regional and national levels. To my knowledge, few Mexican plant collections have been systematically described in a book that is closely tied with a botanical institution, hence, the relevance of this volume and the JBC as an example of combined effort to further stimulate development of Mexican botanical gardens across the country.

In conclusion, this book is well worth a read. The editors beautifully describe the many hidden aspects and meanings of this palm collection using an informal style well-suited for both plant amateurs and experts. The technical language is kept simple so that a layperson can understand the descriptions, accompanied with beautiful photographs on almost every page, plus exquisite botanical drawings and a detailed user-friendly map of the grounds and trails of the botanic garden. The book's cover is sturdy and durable and is perfectly suited to be used as a companion guide. It is not a textbook, but I shall use lots of interesting information I learned about palms in my economic botany and plant systematics courses.

J. HUGO COTA-SÁNCHEZ
Department of Biology
University of Saskatchewan

The IPS is grateful for the support of the following patrons

2020

Platinum (\$5000 and up)

Drs. Thomas Jackson & Kathy Grant, California, USA,
in support of the production of PALMS

Gold (\$1000 to \$4999)

Ms. Glenn Franklin, North Carolina, USA
Mr. Haresh, Tamil Nadu, India
Mr. Leland Lai, California, USA

Silver (\$500 to \$999)

Mr. J.J. Hillard, California, USA
Dr. Boyd Marts, North Dakota, USA

Bronze

Mr. Michael Ferrero, Queensland, Australia
Ms. Susan Hubbel, Florida, USA
Mr. Dan Keys, Florida, USA
Mr. Larry Klotz, Pennsylvania, USA
Mr. David Tanswell, Queensland, Australia

2021

Platinum (\$5000 and up)

Gold (\$1000 to \$4999)

Ms. Julie Cleaver Malzonie, São Paulo, Brazil
Ms. Glenn Franklin, North Carolina, USA
Mr. Haresh, Tamil Nadu, India
Drs. Thomas Jackson & Kathy Grant, California, USA,
in support of the production of PALMS

Silver (\$500 to \$999)

Mr. Jacques Deleuze, France

Bronze

If you would like to make a gift, however large or small, please contact IPS
President Ray Hernandez, rayhernandez77@gmail.com or any IPS Board member.
To give on-line, visit www.palms.org.

