

***Livistona australis* in 19th Century Europe, a Horticultural VIP**

JOHN LESLIE DOWE
*Australian Tropical
Herbarium, James Cook
University, Smithfield, Qld
4878, Australia*
john.dowe@jcu.edu.au

AND

BORIS O. SCHLUMPBERGER
*Herrenhäuser Gärten,
Herrenhäuser Str. 4, 30419
Hannover, Germany*
boris.schlumpberger@hannover-stadt.de

During the nineteenth century, the Australian Cabbage Palm, *Livistona australis* (R.Br.) Mart., became a feature in many gardens and collections in Europe. In colder regions, the palm thrived in glasshouses and conservatories, whilst it was grown outdoors in warmer locations around the Mediterranean. Its attraction was its cold-hardiness and as a symbol of the exotic. Nineteenth-century horticultural journals were examined for primary sources of information to illuminate the history of the species in Europe.

By the early nineteenth century in Europe, an interest in the cultivation of tropical plants was firmly established. Palms were among the most sought-after plants, and assembling of palm collections was seen as evidence of horticultural excellence as well as expressing nationalistic achievement and pride. The collections ranged from a few species to many hundreds, depending on the personal interests of curators and directors, as well as the ability to acquire and then maintain the plants.

The development of tropical plant collections was made possible by technical advances in the design and construction of heated glasshouses. These enabled many tropical and warm climate plants to be cultivated in some of the coldest locations in Europe (Kohlmaier & Sartory 1991). Construction was primarily of iron and glass, and heating was provided by steam, generated by coal and coke, conducted through piping. Along with sophisticated shading systems and artificial humidification,



1 (left). *Livistona australis*, Broken River, Eungella Range, Queensland, near the northern limits of distribution. April 2008. 2 (right). *Livistona australis*, Cabbage Tree Creek Flora Reserve, Victoria, the most southern limits of distribution. January 2018. Photos by J.L. Dowe.

these constructions were able to maintain constant, warm temperatures throughout the year. The increasing use of cast iron facilitated the extension of spans and vertical heights, thus allowing large trees, including tall palms, to be grown to maturity. This paper investigates the Australian cabbage palm, *Livistona australis*, and how it was grown in the glasshouses and gardens of Europe during the nineteenth century.

Livistona australis occurs naturally in eastern Australia, from Paluma Range, Queensland (18.928° S) to near Orbost, Victoria (37.784° S), a distance of over 2500 km (Figs. 1 & 2). Despite the exceptionally broad geographical distribution, the species is morphologically uniform throughout its range. Although preferring coastal or near-coastal habitats, populations can extend inland to locations up to 1000 m above sea level in rainforest and other moist forests. The wide geographical and ecological range of the species has provided an apparent pre-adaptability to cultivation in a range of horticultural conditions.

Cultivation of *Livistona australis* in Europe

The first recorded horticultural collection of *L. australis* occurred during the voyage of the *Investigator* under the command of Matthew Flinders, 1801–03. This voyage circum-navigated Australia and included the botanist Robert Brown amongst the scientific crew. Brown (1810) was later to establish the genus *Livistona* and describe *L. australis* (as *Corypha australis* R. Br.). The gardener assigned to the *Investigator* voyage was Peter Good of Kew Gardens. Good's only known collection of *L. australis* noted "the Cabbage Palm a species of *Corypha*," collected on 23 June 1802, at Hawkesbury River, New South Wales (Vallance et al. 2001). Although it can be assumed that seeds were returned to England, there were no records of subsequent activity with regards to germination and cultivation in England.

The first verifiable record of *L. australis* being received at Kew was in 1808, with seeds sent from Australia by the collector George Caley (Russell 1962). Subsequent documentation of the plant collections at Kew did not include



3 (left). *Livistona australis* Rob. Br. Plate 1789. Permission of Queensland Herbarium Library. 4 (right). *Livistona australis* Rob. Br. Plate 1790. Van Houtte, L. 1868. *Flore des Serres et des Jardins de l'Europe* 17. Both reproduced with permission of Queensland Herbarium Library.

any Australian palms so it can be concluded that the species was still not successfully cultivated as of 1813 (Aiton 1810–1813).

The first successful cultivation of *L. australis* at Kew was in 1824. It was reported that seeds were dispatched from Australia, not as propagating materials *per se*, but as drainage crocks in containers of other Australian plants, and, by coincidence, germinated during the voyage to England (Seemann 1856). The plants were dispatched under the direction of Allan Cunningham, who was then collecting Australian plants and herbarium specimens for Kew. Upon arrival of the potted plants at Kew, the germinated seeds of *L. australis* were found and cultivated by John Smith, then overseer of the hot houses, and in 1841, the first Curator at Kew.

In only a few years, the palm became commercially available in England and was listed in the 1830 catalogue of Loddiges Nursery as a “stove plant,” i.e. one that

requires a heated glasshouse (Conrad Loddiges & Sons 1830). There is no record of how Loddiges obtained the species, but the company was active in acquiring and propagating Australian plants (Cavanagh 1990).

Further dispatches of seeds from Australia were credited to the Austrian explorer John Lhotsky (in Australia 1832–38), who declared that the species was “of great value to the practical gardener or amateur collector” (Conductor 1834). Possibly the greatest disseminator of seeds was Baron Ferdinand von Mueller, Victorian Government Botanist, who sent large quantities to Mediterranean countries (Parkin 1996). Mueller was active in supplying seeds of Australian plants and provided “a box of seeds of *Seaforthia elegans* and *Livistona (Corypha) australis*, two of the most beautiful palms from Australia” to the Société d’Acclimatation de France (Raveret-Wattel 1874). The German horticulturist Eduard Ortgies (1869) reported that *L. australis*, by the

1860s, had been introduced by “a massive importation of seeds and seedlings” and that they were “now very inexpensive.” The Belgian horticulturist Louis Van Houtte (1868) provided two of the first published illustrations of cultivated specimens (Figs. 3 & 4) and wrote that “it does not lack buyers who can afford to place it in a position of grandeur.”

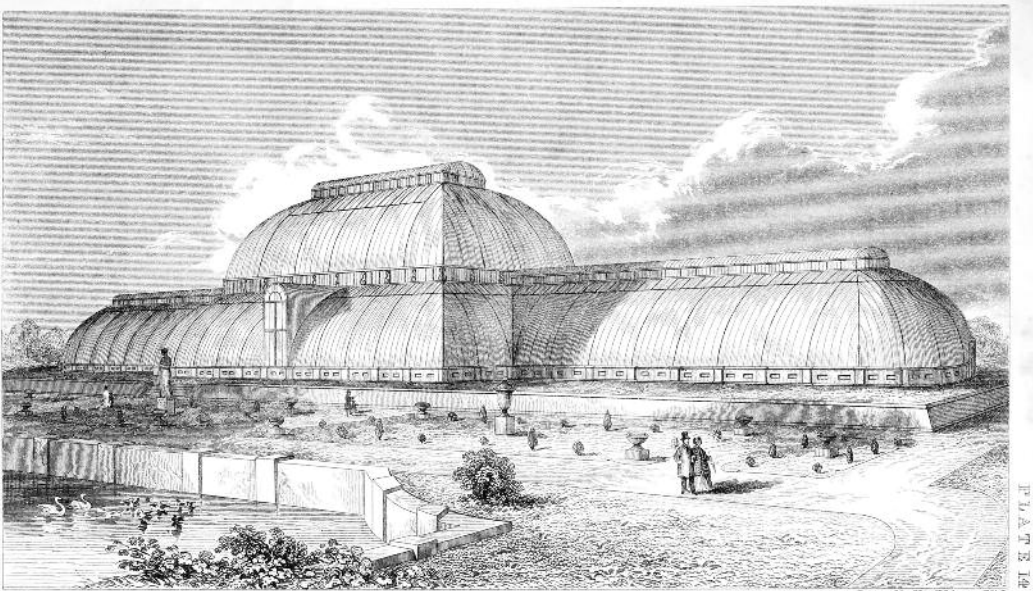
Once the horticultural potential and supply of *L. australis* were fully realized, the species was praised for its “magnificence,” “noble proportions” and “desirability.” It was promoted as one of the “choicest” palms for the home as a potted plant, in the conservatory as a feature plant and in the open air in warmer regions of southern Europe (Croucher 1872, Williams 1876, André 1879). The cold-hardiness and adaptability of the species for outdoor cultivation around the Mediterranean was soon recognized and described as “hardy to semi-hardy in regions where oranges are grown” (Naudin & Mueller 1887). A summary of individuals established in the late nineteenth century in Italy and France was provided by Roster (1913). These included specimens to 13 m tall at Palermo and others at Cannes that survived undamaged in temperatures as low as -7°C . Possibly the largest collection was at Naples Botanic Gardens, where 27 individuals from 2 m to 12 m tall were cultivated.

The Kew Palm House

One of the main attractions in the Royal Botanic Gardens Kew is the Palm House and its exceptional collection of tropical plants (Fig. 5). Completed in 1844 (Gosse 1857), it was to house one of the largest palm collections in Europe during the nineteenth century (Minter 1991). It was reported that the collection numbered “upward of 300 species” in 1878 (Hemsley 1878), 407 species in 1889 (Royal Gardens, Kew 1897) and more than 450 species in 1910 (Anon. 1910a).

One of the first published accounts of *L. australis* at Kew was provided by the German horticulturist Eduard Otto (1833), who wrote, after visiting Kew, that *L. australis* was the only Australian palm cultivated in European gardens. Subsequent reports indicated that by 1848, *L. australis* (by this time transplanted to the Palm House) had grown to “six feet [1.8 m] of trunk and more than 120 leaves” (Fischer 1848). By 1856, it was described as one of the “majestic” species amongst the palm collection (Flach 1856) and had reached a height of 9 m (Houlston 1856). However, the healthy and rapid growth of *L. australis* was to threaten its own existence and, when the crown was approaching the ceiling of the Palm House in 1876, it was cut down and replaced with *Phoenix dactylifera* (Hooker 1876). Prior to this, the renowned illustrator and lithographer

5. “View of Palm Stove at Kew,” Plate 14 from McIntosh 1853. The Book of the Garden, Vol 1. William Blackwood and Sons, Edinburgh and London. Source BHL.



VIEW OF PALM STOVE AT KEW.

Walter Fitch completed an illustration that was published in Curtis's Botanical Magazine (Fig. 6). Hooker (1877), in the accompanying text, wrote that "this graceful palm was for many years one of the greatest ornaments of the Palm House" and that "it flowered annually at Kew, in the spring months, for many years." Eight years after the felling of *L. australis* in 1876, a second individual was reported to have flowered (Anon. 1884) and was described as "the tallest tree in the house, and distinctly shows its leaves in the uppermost dome or section of the building."

In 1891, several palms were removed from the Palm House and transplanted to the Temperate House (Watson 1891), amongst them *L. australis* and *L. inermis*. This was necessitated by the "crowded state of the former house" and those chosen for transplanting "would be likely to thrive in a temperature which, during summer, is the same as that outside in this country, and in winter is heated only sufficiently to keep out frost." There were continuing misapplied references to "*L. inermis*" [= *L. decora*] during the following years (Watson 1889), amongst which was a proposition that this name correctly applied to the Victorian population of *L. australis*, because of the apparent "pinnately-palmate leaves" (Hemsley 1892). This confusion was not satisfactorily resolved until Beccari's account of the Coryphoid palms (Beccari 1921).

And yet another individual named as *L. australis* was reported as flowering in the Palm House in 1904 (W.H. 1904). It was described as "35 feet (11 m) in height, and 1½ foot (0.4 m) in diameter at the base, and has a head of leaves some 14 feet (4.2 m) across," and with "large branched spikes of flowers measure about 3 feet (1 m) in length; the branches of the inflorescence are drooping, like the branches of the funeral *Cypress*; the flowers are creamy white. The plant is carrying six of these large inflorescences."

Other gardens in the United Kingdom that had plants of *L. australis* included Edinburgh Botanic Garden where, in the glasshouse, it was reported in 1858 to be a height of 7 m (Balfour 1860) and by 1883 had reached 12.5 m, with "a clear stem of 20 feet 4 inches [6 m], and 3 feet 3 inches [1 m] at the base" (Lindsay 1886). A specimen was grown in the Great Conservatory at Chatsworth, the estate of the Duke of Devonshire, where it was described as "magnificent" and "noteworthy" (Fintelmann 1882), and also in the Palm House

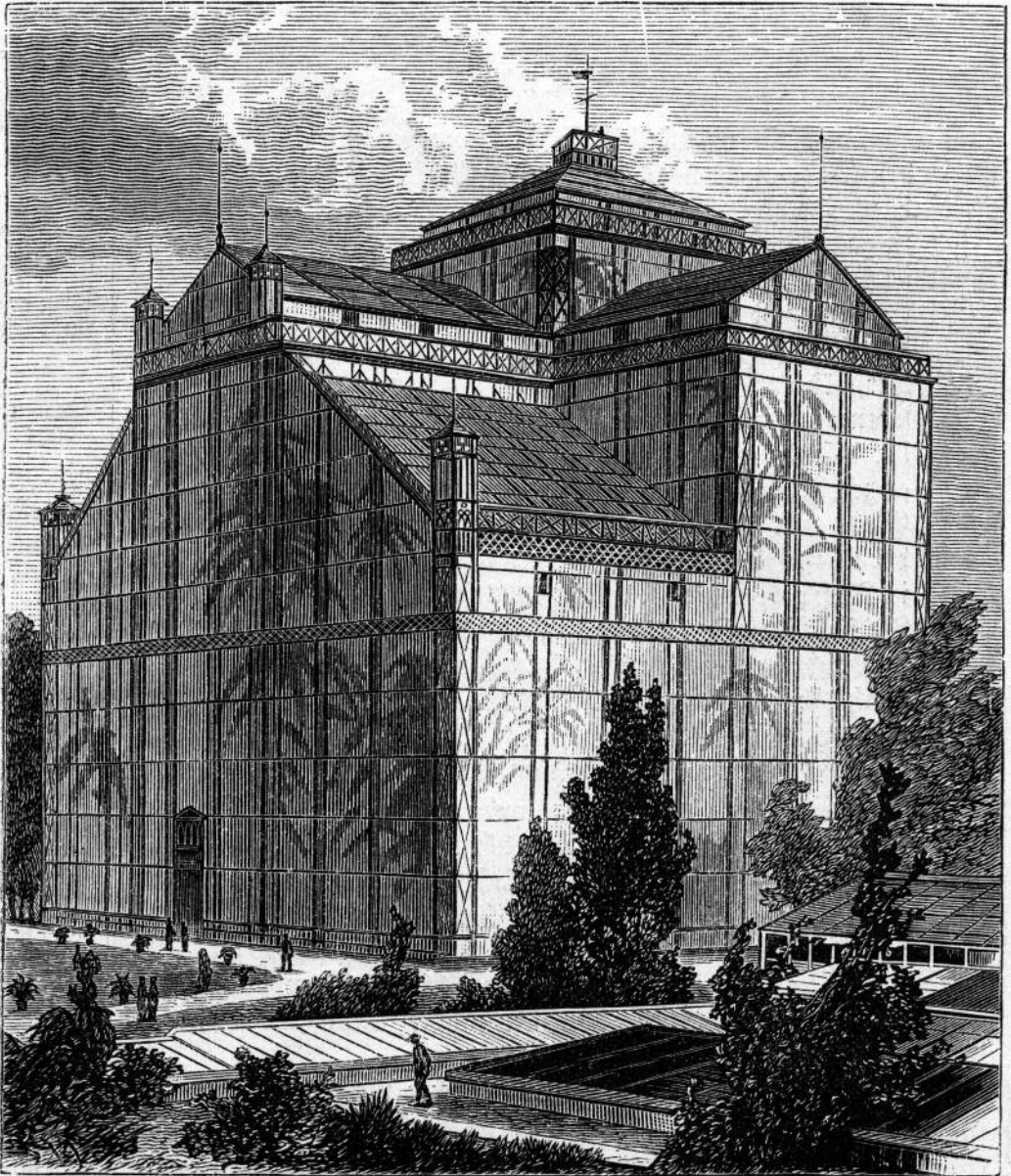
at the Dangstein Estate, Sussex (Trotter 1988). Outdoor cultivation was reported on the Isles of Scilly (Meyer 1885), Guernsey (Carré 1887) and Torquay, Devon, where it flowered (Ramsey 1900).

The Royal Gardens of Herrenhausen near Hannover

Somewhat in competition with the palm collection at Kew, the collection at the Royal Gardens of Herrenhausen, Hannover, Germany, was the largest in Europe in the nineteenth century, surpassing Kew in the number of species, diversity and the eventual maturity of individual specimens (Minter 1991). The collection was first established by Court Gardener Heinrich Ludolph Wendland in the 1830s and later expanded by his son, Hermann Wendland, who assumed the role of Court Gardener upon the death of his father in 1869. Hermann Wendland was a very productive palm taxonomist, with more genera being established by him than any other botanist (Dowe 2018).

The original accession record for *L. australis* at Herrenhausen has not survived; however, published reports in a variety of horticultural and botanical journals allow a reasonable understanding of the history of its cultivation. It was reported by Hermann Wendland that the species was first obtained by his father Heinrich from Kew Gardens in 1827 as "a little 1.5 foot [0.47 m] high plant" (Wendland 1852). The palm was most likely grown in one of the glasshouses at Herrenhausen, possibly the one constructed in 1791, where the first palm collection was gathered (Rettich 2006). By 1847, *L. australis* was reported to be over 9 m tall (Otto 1847). The glasshouse was subsequently replaced by a much larger structure designed by German architect Georg Ludwig Friedrich Laves in 1849 and from that time became known as the Palm House. It was a timber beam construction, measuring 35 m long, 10 m deep and 13 m high (Kohlmaier & Sartory 1991). It can be ascertained that *L. australis* was moved into the Palm House in about 1849. It was maintained as a potted specimen at this time, a considerable horticultural feat for such a large palm. It was placed in a central position on a 1.5 m tall pedestal, with an overall height of 7.3 m and with 1.7 m of bare stem (Wendland 1850). It was to achieve rapid growth: two years later it was 7.6 m tall with 2.4 m of bare stem (Wendland 1852), and seven years was 12 m tall with 4.2 m of bare stem (Koch & Fintelmann 1859).





Das Palmenhaus.

7. Palm House, Herrenhausen Gardens, circa 1890, designed by Richard Auhagen (Woodcut from unknown source). With permission of Historisches Museum Hannover.

In 1875, an annotated list of the palms at Herrenhausen was published, including at least 435 palm species. At this time, *L. australis* had reached an overall height of 14.72 m and with 9.76 m of bare stem (Schaedtler 1875).

opposite page:

6. *Livistona australis*, drawn from a plant in the Palm House at Kew. Curtis's Botanical Magazine 33: Tab. 6274 (1877). (W. Fitch and Vincent Brook Day and Son). Permission of Queensland Herbarium Library.

During the late 1870s, the palm eventually reached the roof, so the pot was placed deeper in the ground. By this time, the Laves's Palm House was showing structural deterioration, and the expanding collection had become increasingly overcrowded. A new and much larger Palm House was designed and constructed by the Royal Building Overseer Richard Auhagen and completed in 1880. The large collection had been difficult to maintain in the smaller glasshouse, where individuals



8. "Vue intérieure de la Serre aus Palmiers a Herrenhausen," with *Livistona australis* the dominant tall palm. L'illustration Horticole 29. 1882. (creator not known). Courtesy of Nicole Schuermans-Ceulemans, Belgium.

were all kept as potted specimens. The new glasshouse (Fig. 7) was a cast iron and glass structure with a length of 30.5 m, width of 28.5 m and a central height of 30.2 m, which made it then the tallest glasshouse in Europe (Auhagen 1882). The additional space, both horizontally and vertically, allowed many of the larger specimens to be planted directly into the soil, which was heated by a complex system of ducts, heaters and pumps. *Livistona australis* was moved to the new Palm House and planted directly into the ground in the prime central position (Preissel & Preissel 1993) (Fig. 8). According to Wendland (1882) the relocation prompted flowering for the first time, producing "12 decorative long flowering stems," and which was "probably initiated by an increase in the amount of light."

An inventory of the living plant collection in Herrenhausen in 1888 listed 85 palm species in the Palm House (Peters 2013). The remainder of the palm collection was held in auxiliary heated glasshouses. The display in the Palm House was supplemented by the potted collection, and only a small portion of the palm collection was on public display at

any one time. There was an emphasis on a "natural" display rather than one including large numbers of plants in otherwise crowded "unnatural" arrangements (Stühning 2008).

Livistona australis continued its upward growth, and in 1898 was reported to be approaching the roof at a height of 23 m (Wittmack 1898). In 1912, at 32 m high, the crown reached the roof and was "threatening to destroy the glass" (Fischer 1912). However, it endured until 1920 when, at almost 100 years old, the palm was cut down with permission of the Duke of Cumberland (Rettich 2006). A 2.5 m length of stem, a cross-section and two leaves were preserved in the provincial museum, now the Niedersächsisches Landesmuseum in Hannover (Preissel & Preissel 1993). The museum accession entry recorded that the palm: "Had to be cut beginning of March 1920 because of too large size. Dimensions: stem size 26 m, leaf crown size 5 m, in total 31 m long. Stem diameter at the base 68 cm, at 26 m height 26 cm" (C. Schilling & A. Böhme, pers. comm.).

The Palm House survived well into the twentieth-century but was damaged during

9. *Livistona australis*, in the Jardin des Plantes, Paris. The Garden 26: 337. 1884. (creator not known). Source BHL.



Livistona australis.



FIG. 28.—LIVISTONA AUSTRALIS.

10. *Livistona australis*, Villa Venetienne, Nice. The Gardeners' Chronicle, third series, 71, July 29: Fig. 28. 1922. (photographer not known). Source BHL.

bombing raids in World War II and demolished in the early 1950s (Schwerin 2013). The museum stem and leaf specimens have not survived and were most likely destroyed during World War II (C. Schilling & A. Böhme, pers. comm.).

A number of other German botanical gardens also had feature specimens of *L. australis*. In the Munich Botanic Garden it was reported as having been received in 1826 by Carl von Martius as a gift from William Aiton at Kew (Kolb 1867). By 1862, it had reached a height of 12.8 m, and was reputedly the tallest individual in Europe (Mulsant 1862). Specimens dated 1862/1864 in the Munich Herbarium include inflorescences and flowers, thus indicating that the Munich plant had flowered by that time. Carrière (1868) noted that the individual had flowered three times in six years since 1862. By 1877, it had reached a height of almost 20 m (Carrière 1877). Individuals were also grown in glasshouses in Berlin (Sauer 1834), Moabit (Otto & Dietrich 1854), Donaueschingen (Brandt 1885), Göttingen (Mönkemeyer 1890) and Frankfurt am Main (Anon. 1910b).

Cultivation elsewhere in Europe

Other glasshouse specimens of *L. australis* in Europe were reported in France (Paris and Lyon) (Fischer 1847; Regel 1865) (Fig. 9),

Belgium (Laeken, Bierbeek & Brussels) (Morren 1859, 1883; Koch 1862), Netherlands (Zwolle) (Witte 1859), Hungary (Alcsuth) (Schebanek 1878), Russia (Odessa, Nizhny Novgorod and St Petersburg) (Koch 1853, 1858; Dörr 1887) and Austria (Vienna-Schönbrunn) (Dechevalerie 1873).

In the warmer regions of Europe, *L. australis* was grown outdoors. For example in Monaco (Monte Carlo) (Anon. 1887); in France in Toulon (Naudin 1856), Hyères (Nardy 1874), Nice (Chabaud 1882), Cannes (André 1883, 1888) and the Riviera region (Becker 1901; Chabaud 1915) (Fig. 10); in Italy in Palermo (Sprenger 1884), Görz (Palm 1887), Naples (Regel 1891), Elba (Anon. 1904), Porto Ercole (Mt Argentario) (Kyburz 1989) and Genoa (Regel 1874, Brandt 1878, Wittmack 1883); in southern Russia (Sukhumi) (Saakov 1963); in Portugal (Lisbon) (Carmichael 1885); and in Spain (Menorca) (Rodriguez 1901).

Conclusion

As a featured glasshouse palm, *L. australis* was eventually replaced by other palm species that were considered more exotic or otherwise of greater interest. Experience dictated that *L. australis* could reach great heights in a relatively short period and was ultimately unsuitable for even the tallest glasshouses. As an outdoor palm it has remained popular in Mediterranean countries (Pintaud 2002). Although its status as a feature palm extended throughout most of the nineteenth-century, it is now only rarely kept in European glasshouses – a “horticultural VIP,” whose time came and went.

Postscript

Although this current research has focused on the horticultural history of *L. australis*, we are aware of its susceptibility to the Red Palm Weevil, *Rhynchophorus ferrugineus*, which is presently infesting and killing many palms in southern Europe (Soroker & Colazza 2017). However, details of individual deaths and extent of damage for *L. australis* are presently not available. If Red Palm Weevil cannot be controlled, continuing cultivation of *L. australis* in southern Europe may be at risk.

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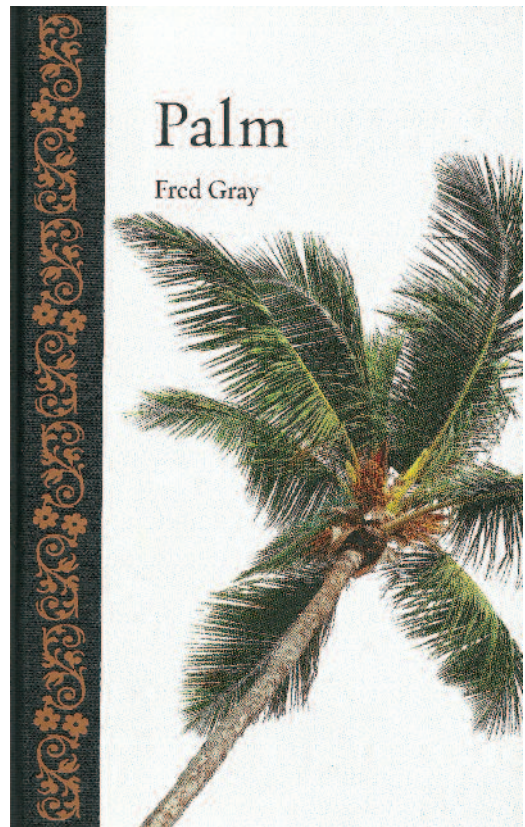
PALM LITERATURE

PALM – Fred Gray, Reaktion Books, London. 2018. Hardcover. ISBN: 978-1-78023-917-0. Price: £16. 228 pages, profusely illustrated

Reaktion Books is an independent publisher based in the UK specializing in books on art, culture, animals, food and more. *Palm* is the latest (20th) volume in its Botanical Series, “integrating horticultural and botanical writing with a broader account of the cultural and social impact of trees, plants and flowers.” The series includes individual volumes devoted, for example, to apple, bamboo, cactus, cannabis, etc.

Fred Gray is Emeritus Professor of Continuing Education at the University of Sussex in UK and is particularly interested in the architecture and landscaping of the seaside. In not being a palm specialist he perhaps has a nicely detached view of his subject, where a palm scientist might have found difficulty in not becoming bogged down in endless detail about the amazing diversity of the family, agonizing over what palm to include, what to leave out.

In fact, the author mentions a mere 25 of the 2500 odd recognized species by name, and while the coconut, oil palm and date palms receive substantial treatment, other major economic palms such as the betel nut, sago palm, carnauba wax palm and raphia palms (apart from mentioning that *Raphia regalis* holds the longest-leaf record) receive no mention. Does this matter? Perhaps not when the main thrust of the book, the intertwining



of palm botany, history, cultivation, trade, politics and ecological destruction are so well discussed using the very limited examples chosen.

There are nine chapters. The first two chapters, 1. The Prince of Plants and 2. Dissecting the Giant Herb, deal with the general morphology of the family, mentioning, of course,