The Lovely and Delightful

Areca novohibernica (Arecaceae)

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I am often asked what is my favorite palm, and to answer truthfully seems a daunting and insurmountable task. So many palms are indescribably beautiful or stir up or provoke emotions, often poignant and sentimental, that it seems nearly sacrilegious to select one and call it my favorite, seemingly shortchanging or discarding the other worthy candidates by the wayside. Although many palms, based solely on their sheer, ornamental attributes, vie as my favorite, I surely must select one from the groups of palms that I have intently studied and/or grown and with which I am intimately associated, such as *Chamaedorea*, *Pritchardia*, *Pelagodoxa*, *Clinostigma*, or species from islands with extraordinary assemblages of palms, like New Caledonia or Cuba.

One palm that I have not studied intently until recently but have observed and grown multiple generations for over 40 years at my wife Marianne's house in Papeari, Tahiti, French Polynesia and with which I am fully enamored, is the lovely and delightful *Areca novohibernica*, which, until recently, I knew as *A. guppyana* (Heatubun et al. [2012] formally reduced the latter name to synonymy with *A. novohibernica*). In 1980, while living in Papeari awaiting the birth of our first child Robert, then director of the nearby Jardin Botanique de Harrison Smith, Michel Guerin, shared plants with us of *A. guppyana* that he had grown from seeds originating from the late Donn Carlsmith's estate and palm collection at Onomea, north of Hilo on the Big Island of Hawai'i.

Most species of *Areca* do best in shade, so I planted our *A. guppyana* under a rambutan tree (*Nephelium lanceum*), where it grew impressively for 35 years, even surviving a tropical cyclone (hurricane or typhoon) in 1983, and eventually attaining over eight m in height and breaking through the rambutan's canopy (**Fig. 1**). During this time, it produced prodigious amounts of fruits, many of which simply germinated under the rambutan tree to form a small forest of *A. guppyana* (**Fig. 2**) but others of which our nephew Ariiteuira Falchetto gathered, germinated, potted up and grew on, and sold as part of his budding palm nursery business.

In early 2020, just prior to the COVID-19 pandemic and during landscape renovation around our house, Ariiteuira shared three plants of *Areca guppyana* with us, which we planted in the shade of nearby mango trees. I did not see these plants again until nearly three years later, in late 2022. They had attained maturity and were in their prime, displaying their mesmerizing and charming features that enamor me so, including their legendary crown of heavy-looking but gracefully

1. Marianne Hodel complements an offspring of the original *Areca novohibernica* (*A. guppyana*) in 1990, about five years of age and just starting to flower. Unless otherwise noted, all photographs are at the Hodel residence, Papeari, Tahiti, French Polynesia.

2. A fruiting *Areca novohibernica* (*A. guppyana*) in 1990 forms part of a veritable forest of offspring of the original 1980 plant.

3. In 2022, Marrianne Hodel stands next to a 3rd-generation *Areca novohibernica* planted out in 2020. It has gracefully arching leaves with a few, broad, prominently nerved pinnae, showy red fruits, and stilt roots. The quintessential palm!

arching leaves with few, broad, prominently nerved, serrated-tipped pinnae, bright green crownshaft, and showy, compact clusters of bright red fruits, nearly the size of ping pong balls, all held on a tan, impossibly slender stem supported by a rather dainty cone of conspicuous, dark brown stilt roots (**Fig. 3**). If ever the quintessential palm existed, this is it!

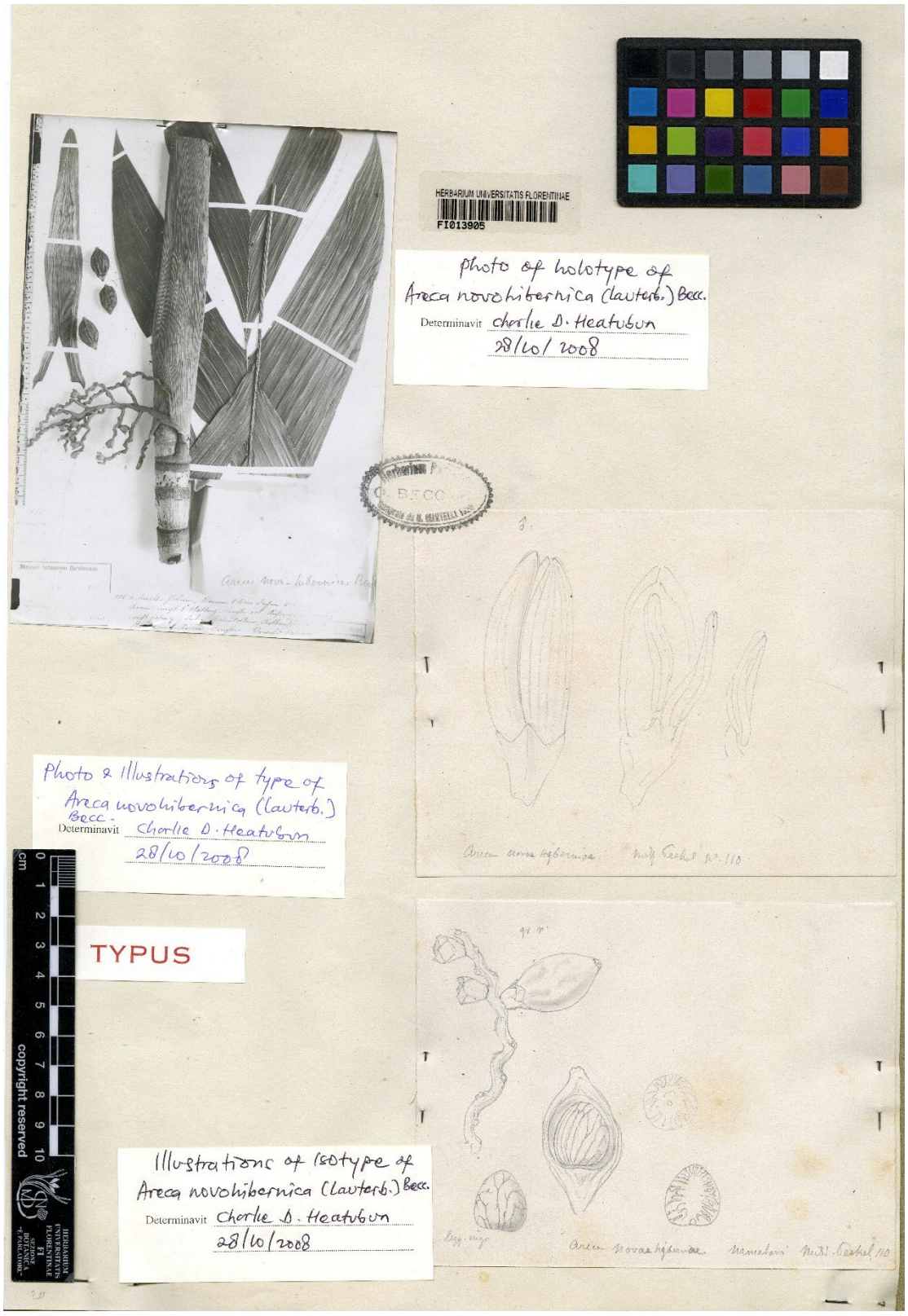
Here, I share my enthusiasm for *Areca novohibernica*, providing information about its history, taxonomy and nomenclature, a description, distribution and ecology, conservation, miscellaneous notes, and cultivation.

History

Carl (Karl) Adolf Georg Lauterbach (21 April 1864 in Breslau – 1 September 1937 in Breslau), a Polish-born, German explorer, naturalist, and botanist, is perhaps best known for at least three exploratory expeditions he undertook to Kaiser-Wilhemsland (German New Guinea), the northern portion of present-day Papua New Guinea, and surrounding areas in 1889, 1896, 1899–1900, and perhaps 1902. He was appointed director of the German New Guinea Company, a German-chartered company that exploited natural resources in Papua New Guinea, during the third expedition (NHN 2022, Van Steenis-Kruseman 1950). A person of independent means, Lauterbach had an impressive nursery and arboretum at his estate at Stablewitz near Breslau (DB 2022).

Lauterbach authored several papers about the vegetation of New Guinea, including one in which he named and described the palm *Nenga novohibernica* (Lauterbach 1911), basing it on a collection that Gerhard Peekel (1876 in Essen-Ruhr – 19 February 1949 in the Bismarck Archipelago), a German missionary and plant collector, had made sometime from 1908 up until 1911 on New Ireland in the Bismarck Archipelago, Papua New Guinea (Stafleu and Cowan 1983, Van Steenis-Kruseman 1950). Peekel was an ordained Roman Catholic missionary and served in the Bismarck Archipelago from 1904 until his death there in 1949. During World War II he was a prisoner of the Japanese and after the war he recovered in Australia but returned to New Guinea (Van Steenis-Kruseman 1950). In some literature, for example (Beccari 1914b), Peekel is referred to as “Miss” Peekel, which could be misleading because Peekel was certainly male. However, the “Miss” undoubtedly is simply shorthand to designate his missionary status.

In 1914, The great Italian naturalist, botanist, and palm specialist Odoardo Beccari (16 November 1943 in Florence, Italy – 25 October 1920 in Florence) named and described *Areca guppyana*, basing it on a collection that Henry Brougham Guppy (23 December 1854 in Falmouth, England – 23 April 1926 in Martinique), a British surgeon, geologist, botanist, explorer, and photographer, had made in May, 1884 on Shortland Island (formerly Alu Island) in the Solomon Islands (Beccari 1914a).



4. Photograph at FI of the now lost or destroyed holotype of *Areca novohibernica* that was at B. © and courtesy of FI.

5. Lectotype (designated here) of *Areca novohibernica* at FI 013904. © and courtesy of FI.

6. Holotype of *Areca guppyana* at K 000030149. © and courtesy of K.

A few months later, Beccari named and described *Areca novohibernica*, basing it on the same Peekel collection that Lauterbach had cited for his *Nenga novohibernica* three years earlier (Beccari 1914b). Beccari even used the term "n. sp." to designate his new name and did not attribute the epithet to Lauterbach, raising the remarkable possibility that he was actually naming a new species. Nonetheless, the major on-line plant databases (POWO, IPNI, TROPICOS) treat Beccari's "new species" as simply a transfer of the name from *Nenga* to *Areca*, creating the new combination *A. novohibernica*, but more on this amazing nomenclatural oddity later.

In 1936, Karl Ewald Maximilian Burret (6 June 1883 in Saffig, Germany – 19 September 1964 in Berlin), a German botanist who specialized in palms, named and described *Areca novohibernica* var. *salomonensis*, basing it on a collection that Sethrick Frank Kajewski (1904 – 4 September 1997), an Australian botanist who collected in Vanuatu and the Solomon Islands for the Arnold Arboretum of Harvard University, had made on Bougainville Island in Papua New Guinea (Burret 1936). Although Burret treated this taxon as a variety, he suggested that further study could show it to be a species.

Several years later, Hill and Salisbury (1947), apparently accepting the suggestion that Burret had made, elevated the variety *salomonensis* to a species, listing it as *Areca salomonensis* without providing any supporting data or information.

Finally, Heatubun et al. (2012) formally synonymized *Areca guppyana*, *A. novohibernica* var. *salomonensis*, and *A. salomonensis* into *A. novohibernica*.

Taxonomy and Nomenclature

Areca novohibernica (Lauterb.) Becc., Bot. Jarhb. Syst. 52: 24. 1914.

≡ *Nenga novohibernica* Lauterb., Bot. Jarhb. Syst. 45: 357. 1911. Type: Papua New Guinea, Bismarck Archipelago, New Ireland, Nabumai, Urwald, *Peekel 110* (Holotype B, [not found, lost or destroyed, **Fig. 4**], photograph FI 013905; lectotype, here designated: FI 013904) (**Fig. 5**).

= *Areca guppyana* Becc., Webbia 4: 258. 1914. Type: Solomon Islands, Shortland Islands, Shortland Island (Alu Island), "1 to 2 miles from the coast," *Guppy 107* (Holotype K 000030149) (**Fig. 6**).

= *Areca novohibernica* var. *salomonensis* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 13: 69. 1936. Type: Papua New Guinea, Bougainville Island, Kugumaru, Buin District, "Very pretty little palm. Rain-forest. 150 m. Common," 2 July 1930, *Kajewski 1908* (Holotype B [not found, lost or destroyed]; lectotype, here designated: A

7. Lectotype (designated here) of *Areca novohibernica* var. *salomonensis* at A 00057849. © and courtesy of A.

8. Lectotype (designated here) of *Areca novohibernica* var. *salomonensis* at A 00057848. © and courtesy of A.

000578448, A 00057849 (**Figs. 7–8**); isolectotypes BISH 1006310, BISH 1013833, BRI, G 00025018, P 01795389).

= *Areca salomonensis* (Burret) Burret ex A. W. Hill & E. Salisb., Index Kew. Suppl. 10: 19: 1947.

The major on-line plant name databases (IPNI, POWO, TROPICOS) and most recent taxonomic treatment (Heatubun et al. 2012, Baker et al. 2024) treat this name as the result of a simple transfer of the basionym *Nenga novohibernica* Lauterb. to *Areca*, making the new combination *Areca novohibernica* (Lauterb.) Becc. However, the situation is not so simple, and several odd aspects and strange goings-on are present in this case.

When making the suspected new combination, Beccari added the abbreviation “n. sp.” to his name and did not attribute the name to Lauterbach or even mention Lauterbach directly. Furthermore, and strangely, Beccari’s treatment of *A. novohibernica* (Latin for New Ireland) was in an article entitled "Neue Palmen Papuasiens," which is one of 10 installments in the fourth part of a series entitled "Beiträge zur Flora von Papuasien" that Lauterbach himself edited! In fact, the first half (Pt. A.) of Beccari's contribution (which begins on p. 19, Beccari 1914b), entitled "Allgemeine Bemerkungen über das Vorkommen der Palmen in Papuasien," is authored by Lauterbach! In the very last paragraph of that section (immediately preceding the description of *A. novohibernica* Becc. "n. sp.," Lauterbach himself uses Beccari's name in an enumeration of the five endemic species known from Neu-Mecklenburg (German name for New Ireland) through the efforts of Peekel, but does not mention *N. novohibernica*! Here are three possible explanations: 1) Lauterbach had forgotten about his own species, three years after it was published; 2) *N. novohibernica* had since been collected elsewhere, and no longer qualified (as of 1914) as endemic to Neu-Mecklenburg; 3) Lauterbach was tacitly acknowledging that *A. novohibernica* and *N. novohibernica* were one and the same, which, of course, is the likeliest possibility and the one most favoring the "new combination" hypothesis.

Still, Beccari’s use of the term “n. sp.” and lack of directly acknowledging Lauterbach bother me as does the fact that a duplicate of *Peekel 110* is extant at FI, Beccari’s home base, raising the possibility that Lauterbach and Beccari based their names on different duplicates of the same collection (Lauterbach’s type at B having since been destroyed and lost), inadvertently describing the same species twice but in different genera.

Although Beccari did not mention Lauterbach directly, Lauterbach was responsible for the German description of Beccari’s *Areca novohibernica* (see footnote at bottom of p. 24, Beccari 1914b). Thus, Lauterbach's contribution to the validation of the name *A. novohibernica* was equal and identical to that of Beccari; hence, a strong argument could be made that the authorship of

the name (whether a new species name or a new combination) could be credited to "Becc. & Lauterb. in Becc."

What is striking in these various scenarios is Lauterbach's rather extensive involvement in Beccari's *Areca novohibernica*, from editing the series in which Beccari's *A. novohibernica* ("n. sp.") appeared, authoring the first part of Beccari's contribution (Beccari 1914b), and even providing the German description of Beccari's *A. novohibernica* ("n. sp."), but without any acknowledgement of his own and prior *Nenga novohibernica*, which was based on the same type as Beccari's later *A. novohibernica*.

Also of interest is that Lauterbach's German description of *Areca novohibernica* in Beccari (1914b) differs in various respects from his Latin description of *Nenga novohibernica in* Lauterbach (1911); for example, leaves of the latter were described as up to 1 m long and the inflorescence as 22 cm long, vs. 1.20–1.90 m and 29 cm in the former. Moreover, certain details in the description of the *Nenga* were omitted from the German description of the *Areca*; for example, pistillate flowers of the *Nenga* were described in considerable detail, while those of the *Areca* are alluded to only in terms of their position (at the base, for example "*am Grunde*") on the infructescence branches (rachillae). Differences in the two duplicate specimens of *Peekel 110* might account for these discrepancies in the two descriptions. A photo of the now lost specimen at B shows a more complete specimen composed of a portion of the leaf blade with several attached pinnae, a portion of stem with attached inflorescence, and several loose fruits as well as drawings of staminate flowers, fruits, and attached rachilla while the specimen at FI is composed of a portion of the leaf rachis with an attached pinna and a closed envelope presumably with fruits. Nonetheless, one would think that Lauterbach would have sought to incorporate all of that variation in his most recent description of *A. novohibernica*.

In deciphering whether Beccari (1914b) was making a new combination or naming a new species, the Code (Turland et al. 2018, Art. 41.4), fortunately, provides some relief:

> "If, for a name of a genus or lower-ranked taxon published before 1 January 1953, no reference to a basionym is given but the conditions for its valid publication as the name of a new taxon or replacement name are fulfilled, that name is nevertheless treated as a new combination or name at new rank when this was the author's presumed intent and a potential basionym applying to the same taxon exists."

It seems that in this case, nearly all the conditions for a valid new combination exist: the taxon was validly published, a potential basionym applying to the same taxon exists, and the type was cited. Thus, "presumed intent" would be the main obstacle here, due to Beccari's use of the term "n. sp.," which runs counter to that requirement in the Code.

9. *Areca novohibernica* is a lovely, small, solitary palm with gracefully arching leaves with a few, broad, heavy pinnae on an impossibly slender stem supported by a cone of stilt roots. Note the green prophyll and showy, red fruits.

10. Another view of the *Areca novohibernica* in Figure 9 but taken a few days later to show the golden yellow prophyll just prior to being thrust off by the expanding inflorescence.

Beccari's use of the epithet "*novohibernica*" is not necessarily evidence that he had Lauterbach's *Nenga novohibernica* in mind as a basionym for his *Areca novohibernica*. Beccari and Lauterbach used the same epithet for other taxa collected on New Ireland, for example, *Ptychosperma novo-hibernica* Becc. and *Capparis zippeliana* var. *novo-hibernica* Lauterb. The compelling evidence in this case is that Beccari used that epithet while citing the type of *Nenga novohibernica*; in doing so, he validated either a new combination in *Areca* based on the last-mentioned binomial, under the provisions of Art. 41.4, which has been the prevailing interpretation, or else he validated a new species name (his intent?) using the same epithet and based on the same type! Oddly enough, a new species name (as opposed to a new combination) using the same epithet and based on the same type as a pre-existing name in another genus, appears tenable, or at least would be legitimate, according to the Code(Turland et al. 2018, Art. 52.1):

> "A name...is illegitimate and is to be rejected if it was nomenclaturally superfluous when published, i.e., if the taxon to which it was applied, as circumscribed by its author, definitely included the type...of a name that ought to have been adopted, or of which the epithet ought to have been adopted, under the rules . . ."

But this rule would not apply because Beccari could not have adopted the name *Nenga novohibernica* because Beccari's name was in a different genus, only the epithet was adopted; thus, perhaps no obstacle exists under the Code to construing *Areca novohibernica* as a new species name, rather than a new combination.

The case of *Areca novohibernica* is virtually identical to that of *Adelonenga kasesa* (*Ptychosperma kasesa*): Beccari described *A. kasesa* using the term "n. sp.," while citing the type of the prior *Ptychosperma kasesa* Lauterb. but without attributing it to Lauterbach (Beccari 1914b, p. 26). But in this case, Lauterbach accepted Beccari's name as a new combination, citing it as *Adelonenga kasesa* (Lauterb.) Becc., in the same sentence in which he omitted himself as a parenthetical authority when citing *Areca novohibernica* Becc. (just above the description of the latter, the last paragraph of Pt. A, Beccari 1914b, p. 23)! Why Lauterbach would include his name parenthetically for one combination but not the other is unexplainable but could bolster the case that Beccari intended *Areca novohibernica* to be a new species.

In conclusion, perhaps a fourth explanation for this mysterious nomenclatural oddity is worthy of consideration. These oversights could simply be chalked up to a dose of good, old-fashioned lack of attention to detail or simply to sloppy writing, compounded by the slow communications and publication schedules of the era. It is perhaps entirely possible that Beccari coined the epithet *novohibernica* in correspondence with Lauterbach, but publication timescales and changes of heart about which genera to use may not have aligned or been resolved in a timely manner.

11. The stem of *Areca novohibernica* is conspicuously ringed with leaf scars and the internodes are briefly green but quickly becoming tan to whitish.

12. Numerous stilt- or prop roots to 45 cm long support the stem of *Areca novohibernica*.

13. The prop roots of *Areca novohibernica* are brown to dark brown.

All this brings us to the typification of *Areca novohibernica*. If *A. novohibernica* is accepted as a new combination based on *Nenga novohibernica*, the holotype would have been the specimen at B, which was destroyed or lost. Staff at B searched for the specimen but were unable to locate it; thus, lectotypification is appropriate. Photographs of the holotype at B exist at FI. As a general rule, though, photographs, illustrations, tracings, etc., of type specimens do not qualify as original material; hence, they are not eligible for lectotypification. The exception would be photos or illustrations that were either published in the protologue or can be shown to have been prepared prior to the publication of the protologue and to have been used by the author at that time, which is likely not the case here. A specimen, an isotype, of *N. novohibernica* is at FI; thus, lectotypification of this specimen is appropriate. However, lectotypification would be unnecessary if *A. novohibernica* passed muster as a new species name, making the FI specimen the holotype!

Nonetheless, until more convincing evidence is proffered to bolster the case that Beccari's *Areca novohibernica* is a new species, I am disinclined to treat it as such and will follow the prevailing interpretation that it is a combination, formed from the basionym of *Nenga novohibernica*, and I lectotypify the specimen of *Peekel 110* at FI.

Description

Habit: Lovely, elegant, graceful, small, solitary, pinnate-leaved, monoecious, pleonanthic, understory palm 1.5–4(–10) m tall (**Figs. 1–3, 9–10**).

Stem: 3–10 cm diam.; ringed from leaf scars, nodes prominent, 1 cm wide; internodes 3–10 cm, these initially and briefly green but quickly becoming tan to whitish (**Fig. 11**); numerous prop roots supporting stem at base, these to 45 cm long, 1.5 cm diam., brown to dark brown (**Figs. 12–13**).

Leaves: 5–9, few-pinnate, arching-spreading, 1.85–2.25 m long (**Fig. 14**). Leaf base 30–70 × 4.5–10 cm, tubular, forming a conspicuous crownshaft (**Fig. 15**), splitting for 5–15 cm opposite petiole, green, glabrous to lightly to thickly covered with minute, brown lepidote hairs or scales 0.3 mm long extending on to petiole and rachis, these more or less deciduous. Petiole 30–75 cm long, 1–1.7 cm wide and 2–2.5 cm thick at base, 1.5–2 cm wide and 1.7–2 cm thick at apex, rounded abaxially, flat or sometimes very slightly to moderately channeled adaxially (**Fig. 16**), indumentum like that of leaf base (**Fig. 17**), sometimes minutely pitted (**Fig. 18**). Rachis 1–1.7 m long, 2 mm diam. at apex, rounded abaxially with a faint narrow, yellow band, flat or sometimes with a very slightly angled ridged adaxially. Pinnae 3–6 per side (**Fig. 19**), 7–8 cm distant, subalternate, basal ones 40–80 × 2.5–11 cm, 2–6-nerved, slightly sigmoid to falcate, tips oblique- to long-acuminate, middle ones 54–90 × 9.5–21 cm (**Fig. 20**), typically narrowed at base and there 8.5–10 cm wide, 4–7-nerved (**Fig. 21**), slightly sigmoid, tips obliquely to nearly truncately lobed

14. The canopy of *Areca novohibernica* is composed of gracefully arching to spreading leaves, each with a few broad pinnae.

15. The green, tubular, tightly overlapping leaf bases of *Areca novohibernica* form a conspicuous and well developed crownshaft.

16. The petiole of *Areca novohibernica* is rounded abaxially and slightly to moderately channeled adaxially at the base.

17. Like that of the leaf base, the indumentum of the petiole of *Areca novohibernica* is variable, from glabrous or nearly so to lightly to thickly covered with minute, brown lepidote hairs or scales as shown here.

18. Sometimes the petioles of *Areca novohibernica* are minutely pitted.

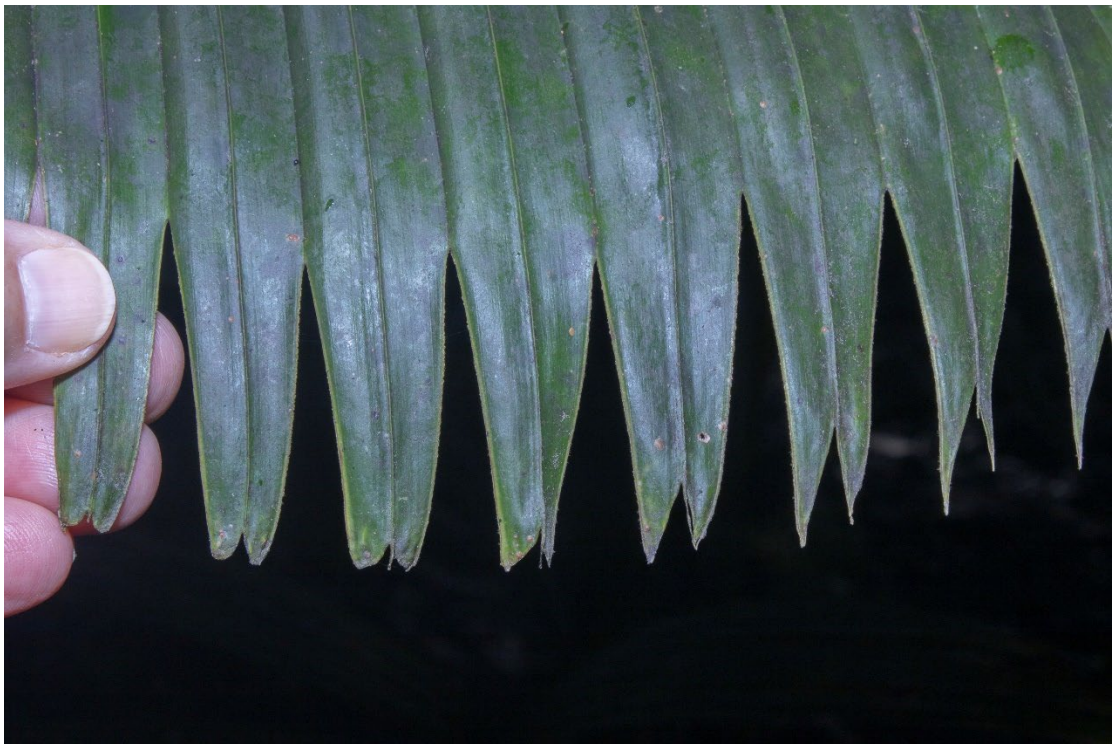
19. Marianne Hodel holds a bold, dramatic leaf of *Areca novohibernica*, which has a few, unusually broad pinnae on each side.

20. Middle pinnae of *Areca novohibernica* are the broadest.

21. Despite their broad dimensions, middle pinnae of *Areca novohibernica* are moderately constricted at the base. Note the prominent, raised nerves.

22. Apical pinnae of *Areca novohibernica* have serrated tips.

23. Apical pinnae of *Areca novohibernica* are often broader than the other pinnae.



24. Individual teeth or pinnae tips are briefly bifid in *Areca novohibernica*.

25. In *Areca novohibernica*, primary nerves are slightly raised abaxially and somewhat converging toward the base as the pinna narrows.

26. In *Areca novohibernica*, pinnae primary nerves are prominently raised.

27. Pinnae of *Areca novohibernica* appear somewhat corrugated because of a prominently raised primary nerve and longitudinally folding of the pinna.

28. Inflorescences of *Areca novohibernica* are infrafoliar.

29. Inflorescences of *Areca novohibernica* are erect to ascending in flower.

30. When heavily laden with fruit, inflorescences of *Areca novohibernica* tend to be drooping and have a yellowish peduncle in fruit.

31. Inflorescences of *Areca novohibernica* are branched to one order distally and two order proximally and have a yellowish green peduncle in flower.

32. The prophyll of *Areca novohibernica* enclosed the inflorescence in bud and turns golden just prior to being thrust off by the expanding inflorescence.

33. The prophyll of *Areca novohibernica* splits longitudinally on the adaxial surface to allow it to open and help it to be thrust off by the expanding inflorescence.

34. The abaxial surface of the prophyll of *Areca novohibernica* is unsplit. Note the cordate base.

35. Like the peduncle, the prophyll of *Areca novohibernica* has a light to moderate covering conspicuous but small, brownish, ragged hairs.

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or notched, cleft between lobes 3.5–7.5 cm deep, acute, apical pinnae 31–52 × 13–24.5 cm, flabelliform (**Figs. 22–23**), 30 cm long upper margin, 60 cm long lower margin, 9–18-nerved, bifid, apex toothed and slightly wider than base, cleft between teeth 5–10 mm deep, individual teeth briefly bifid for 3–6 mm (**Fig. 24**); papery to thin-leathery, green but discolorous when dry and then darker adaxially and paler abaxially, primary nerves slightly raised and converging abaxially toward base (**Fig. 25**), prominently raised adaxially (**Fig. 26**) and helping to lend a nearly corrugated appearance (**Fig. 27**), 6–7 secondary nerves between each pair of primaries, transverse veinlets indistinct, scattered ramentae along primary nerve abaxially, these brown, 2 × 0.5 mm.

Inflorescences: 4–5, infrafoliar (**Fig. 28**), erect to ascending in flower (**Fig. 29**), ascending to spreading to pendulous in fruit (**Fig. 30**), 15–35 × 15–35 cm, ovoid, branched 1 to 2 orders (**Fig. 31**). Peduncle 3–9 cm long, 1–4.5 cm wide and 0.7–2 cm thick at base, flattened, 2 cm wide and 1 cm thick at apex, light green to yellowish green in flower (**Fig. 31**) with conspicuous but small, brownish, ragged hairs 0.2–0.3 mm long and wide, yellowish green in fruit (**Fig. 30**), longitudinally angled. Prophyll attached 3 cm above base of peduncle, 25–37 × 5–9 cm, narrowing to 4 cm wide

at base and slightly cordate, boat-shaped, bluntly rounded apically (**Figs. 32–34**), papery to thin-leathery, longitudinally striate nerved, golden yellow at anthesis, indumentum like that of peduncle (**Fig. 35**), splitting longitudinally adaxially and thrust off by expanding inflorescence and sometimes with the help of wind (**Figs. 36–37**); peduncular bract lacking or attached 2.5 cm above prophyll attachment, 7 × 1 cm, lanceolate, long-acuminate, green initially but turning brown rapidly (**Fig. 38**). Rachis to 16 cm long, 8 mm diam. at apex, longitudinally angled, indumentum like that of peduncle (**Fig. 39**). Rachillae 10–21 (**Fig. 40**), 13 simple rachillae and the 2 most proximal branches with 2–3 rachillae each, sub-peduncle of 2 cm long, 1.3 cm wide, 1 cm thick, proximal rachillae largest, 20 cm long, proximally with triads 5–8 mm wide and 3–4 mm thick, 1–2 × 1.5–2 mm at apex in flower, apical rachilla 7–14 cm long, all zig-zag with floral clusters at "elbow" (**Figs. 41–42**), longitudinally angled especially when dry, light green in flower, 6–10 mm wide and 5 mm thick and yellow to pinkish red in fruit proximally, brow and dry distally where only staminate flowers were; perianth sometimes persistent after fruits fall.

Flowers: gender dimorphic, staminate smaller, pistillate larger (**Fig. 43**), in triads of a typically center, later-opening pistillate flanked on each of 2 sides by earlier-opening staminate in proximal 1/3 to 1/2 of each rachilla but sometimes both genders at anthesis simultaneously, triads distichously arranged in all rachillae (**Fig. 44**) except terminal one and there spirally arranged, or all triads spirally arranged, paired or solitary staminate flowers distally, these distichously or spirally arranged (**Figs. 45–46**), 2 inconspicuous bracteoles subtending triads (**Fig. 47**). Staminate flowers 5.25–7 × 2–3 mm (**Figs. 43, 47, 48**), including base, asymmetrical, elongate, triangular-ovoid to lanceolate or oblanceolate, narrowed proximally, greenish cream colored to white, glabrous or nearly so to bearing scattered, minute, white indumentum or covered with velvet-like indumentum; calyx 1–2.25 × 1.25–1.8 mm, cupular (**Figs. 43, 47, 48**), 3-parted, sepals 3, connate proximally nearly to apex or connate proximally and then briefly imbricate nearly to apex, and finally briefly free apically, broadly rounded to triangular and white margined apically; petals 3, 4–5.5 × 2 mm, linear-lanceolate to narrowly ovate, valvate, thick, fleshy, white (**Figs. 43, 47, 48**); stamens 6, epipetalous, 3.5–3.75 mm high, adnate to petals for 1/2 the length of petals, filaments 0.5–0.75 mm long, shorter than anthers, anthers 2.8–3 mm long, linear, slightly scaly at base, sometimes twisted, attached dorsally; pistillode 0.5 mm high, variously shaped, or lacking or nearly so. Pistillate flowers 5–12 at base of each rachilla, 0.8–2.3 × 0.7–0.9 cm, greenish maturing white (**Figs. 43, 48**); sepals 3, 5–9 × 5–7 mm, broadly ovate, broadly rounded apically (**Figs. 43, 48**) , thick, distal margins thin, free to base or connate in proximal 2–4 mm, then briefly imbricate, and then free distally, sometimes the basally connate sepals forming a short thick pedicel, minutely ciliate on margins, greenish becoming white with scattered, minute, white indumentum; petals 3, 6–8 × 5.5–6.2 mm, imbricate to distal of sepal tips and nearly to apex, rounded-triangular apically (**Figs. 43, 48**), with sparsely scattered, minute,

36. The prophyll of *Areca novohibernica* splits longitudinally on the adaxially surface to allow the expanding inflorescence to emerge.

37. The base of the prophyll of *Areca novohibernica* must also detach from the base of the peduncle to allow it to fall away, sometimes with the help of wind.

38. Sometimes a rather conspicuous peduncular bract is attached just distally of the prophyll attachment in *Areca novohibernica*, an anomaly in the Arecinae.

39. The inflorescence rachis of *Areca novohibernica* is longitudinally angled and has the same type of indumentum as that of the peduncle and prophyll.

white indumentum; gynoecium 4–7 × 4–5 mm, stigma 0.5–1 mm high, trifid, tips distinct, erect, rounded, white; staminodes a low, membranous ring with 4–6 irregular teeth.

Fruits: in clefts 1 cm distant in each of two narrow sides of rachilla, these 5 × 5 mm, 1–2 mm high raised and swollen lip surrounding cleft; bracteole 1.5 mm high, 5–6 mm wide subtending fruit; fruits 3–4 × 1.6–2.5 cm including stigmatic remains but excluding persistent perianth (**Figs. 49–53**), oblong-ovoid to globose-ellipsoid, ellipsoid, or subventricose, each side equally attenuate, base subacute, green ripening yellow to orange to red; stigmatic remains 1.5 × 5 mm, erect; epicarp 0.5 mm thick, smooth, mesocarp 5 mm thick, mealy to fleshy and juicy, yellow-cream-colored, endocarp 1.75 mm thick, composed of prominent, longitudinal, multi-layered, woody, tan fibers 1 mm diam; seed 1.2–2.8 × 1.2–1.7 cm (**Figs. 53–54**), spindle-shaped to conical-shaped, globose-ellipsoid, or ovoid to spherical, sometimes wider than long, rounded apically, flattened to convex basally, tapering distally and especially so proximally, placed or attached slightly above to below middle of fruit, raphe branches numerous, 7–8 ascending dorsally, 4–9 laterally, loosely anastomosing dorsally; endosperm 1.5 × 1.5 cm, deeply ruminate but leaving a solid core 10 × 3 mm; embryo basal, 2 × 2 mm (**Figs. 53–54**); perianth 10 × 8–15 mm, cupular-crown-like, red (**Fig.**

40. Inflorescences of *Areca novohibernica* have up to 13 simple rachillae distally while the most proximal branches have two to three rachillae each.

41. Rachillae of *Areca novohibernica* are zig-zag with floral clusters at the "elbow." Note the distichous arrangement of the floral clusters composed of large pistillate and small staminate flowers.

42. The zig-zag rachilla of *Areca novohibernica* have paired or solitary staminate flowers distally.

43. Flowers of *Areca novohibernica* are gender dimorphic with the pistillate considerably larger than the staminate.

44. Floral triads of *Areca novohibernica* are distichously arranged.

45. Distal paired or solitary staminate flowers of *Areca novohibernica* are distichously (as here) or spirally arranged.

46. Distal paired or solitary staminate flowers of *Areca novohibernica* are distichously or spirally (as here) arranged.

47. Two, small, inconspicuous bracteoles (arrow) subtend the floral triads of *Areca novohibernica*. Note the small staminate and large pistillate flowers.

48. Flowers of *Areca novohibernica* are white at anthesis. The staminate are smaller, slender, and elongate with valvate petals while the pistillate are larger, broader, and with imbricate petals.

49. Fruits of *Areca novohibernica* are red and showy at maturity.

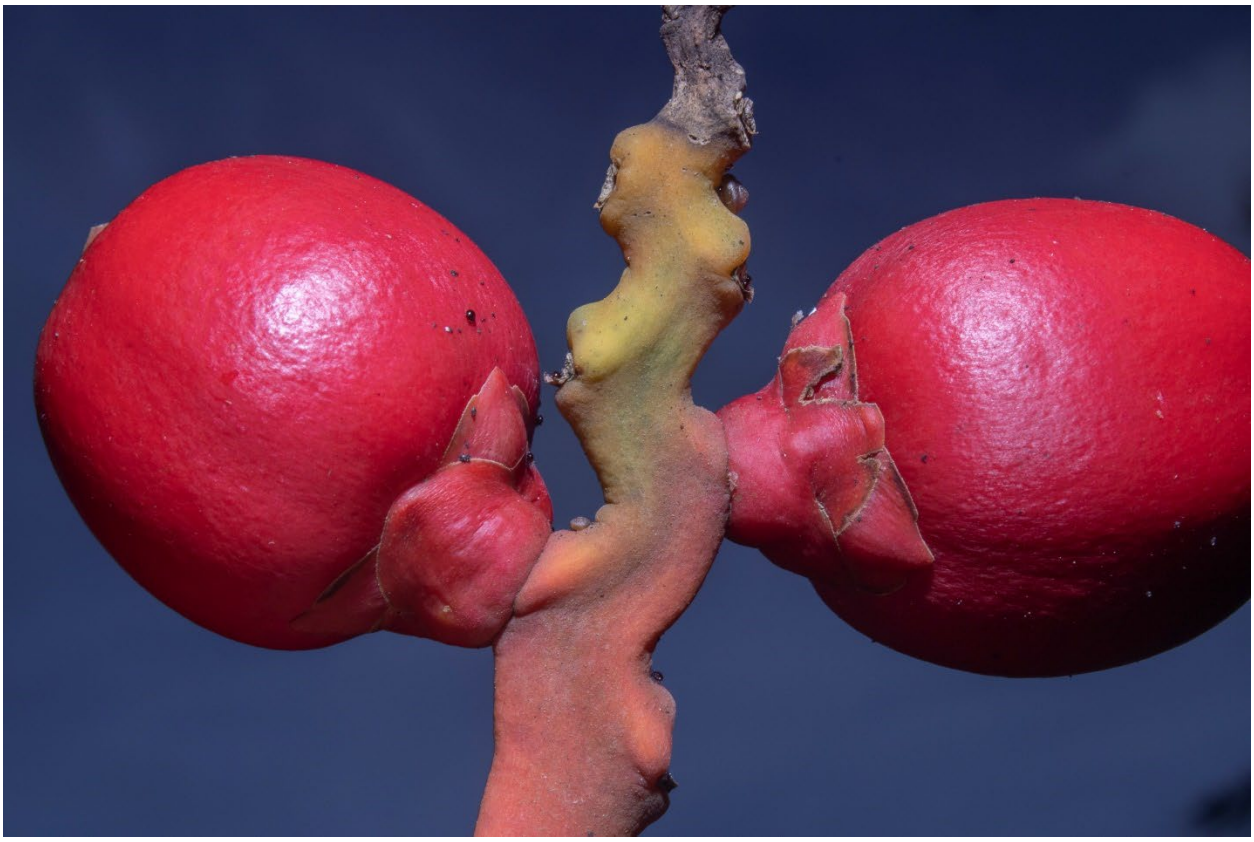
50. The mature red fruits of *Areca novohibernica* are held on pinkish rachillae attached to a yellowish rachis. Note the bare distal ends of the rachillae that had only staminate flowers.

51. Mature red fruits of *Areca novohibernica* are especially handsome and showy when clustered tightly together in a full infructescence.

52. Fruits of *Areca novohibernica* are variously oblong-ovoid to globose-ellipsoid, ellipsoid, or subventricose with prominent apical stigmatic remains.

53. The variously spindle-shaped to globose-ellipsoid or ovoid to spherical seeds of *Areca novohibernica* have an endocarp composed of prominent, woody, tan, fibers.

54. Seeds of *Areca novohibernica* have a deeply ruminate endosperm and a basal embryo.



55. The bright red fruiting perianth of *Areca novohibernica* is cupular to crown-like with distinct sepals and petals red.

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55), sepals and petals are distinct or not too distinct, sepals 7 × 10 mm, broadly triangular, acute-rounded apically, briefly imbricate basally then connate in proximal ½ and forming a short neck-like pedicel 4 mm thick, petals 10 × 8 mm, broadly cordate, rounded-mucronate to narrowly triangular apically, imbricate nearly to base and their briefly connate; staminodes at base of perianth short, 6-toothed,connate basally, broadly triangular apically.

Distribution: Papua New Guinea (Manus, New Britain, Duke of York Islands, and New Ireland, all in the Bismarck Archipelago); Solomon Islands.

Ecology: *Areca novohibernica* occurs as an understory palm on basaltic and limestone soils in moist and wet forests from 10 to 1,350 m elevation.

Vernacular names: *a misle* (Lauterbach 1911); *au-au* (Alu Island, Solomon Islands, Beccari 1914a); *muo-more-carga* (Burret 1936); *tuva* (Duke of York Island, Papua New Guinea, Heatubun et al. 2012); *iburu* (Roviana Island, Solomon Islands, Heatubun et al. 2012).

Uses: The seeds are used as a substitute for betel nut (*Areca catechu*). The species is planted at sacred places and cemeteries in the Solomon Islands (Dowe 1998). The herbarium label of *T. C. Whitmore BSIP4132* at Kew (K000030148) states it was planted at "pagan shrines."

Conservation: *Areca novohibernica* is unlisted in the IUCN (2023) Red List of Threatened Species. However, Heatubun et al. (2012) suggested its conservation status should be endangered (ENB2b, using IUCN criteria). They estimated that the species occupied <500 km^2 in the Bismarck Archipelago and the Solomon Islands. Furthermore, they state that because *A. novohibernica* is an "island palm," they can then infer that its populations are restricted and that natural stochastic events and/or human activities will potentially and negatively affect its survival.

Areca novohibernica (as *A. guppyana*) is listed as DD (data deficient) in the ICUN (1998) Red List of Threatened Species, which was based on an assessment in the Solomon Islands only (Dowe 1998). Dowe noted that logging, agriculture (non-timber crops and livestock), mining, and housing and urban development were the primary threats in the Solomon Islands; these threats might also apply to populations in the Bismarck Archipelago as well.

In the 25 years since Dowe's 1998 assessment, additional threats, specifically those posed by climate change and global warming, have become real and acute. Many tropical wet forests are in a drying trend, and sea level rise might be the most pressing threat to *Areca novohibernica*, at least to low-elevation populations. Indeed, its continued existence on flat, low-lying, coral islands is in doubt because of rising sea levels caused by global warming. As long ago as 2000, over 1,000 residents of Duke of York Island in the Bismarck Archipelago, where *A. novohibernica* was documented, had to be relocated to New Britain due to rising seas (Independent 2000).

Discussion

The description is from Lauterbach (1911), Beccari (1914a, 1914b), Burret (1936), Heatubun et al. (2012), and my measurements and observations of living cultivated plants in Papeari, Tahiti, and is composed of dried and living elements.

Heatubun et al. (2012) stated that *Areca novohibernica*, *A. guppyana*, and A*. novohibernica* var. *salomonensis* were described from inadequate material and/or single specimens, which made for unusually narrow species concepts not encompassing the entire suite of characters of these taxa. For example, fruit characters, which Beccari (1914a,b) and Burret (1936) relied upon heavily to distinguish species, are so variable as to be useless. Thus, after examining the types of these three taxa, Heatubun et al. (2012) could find no reason to maintain all three.

Nonetheless, the plants of *Areca novohibernica* I have grown in Tahiti have substantial and perhaps significant differences with the description in Heatubun et al. (2012) (**Table 1**).

Table 1. Differences between *Areca novohibernica* cultivated at the author's house in Tahiti, French Polynesia and in the description of Heatubun et al. (2012).

Character	Plants in Tahiti	Heatubun et al. (2012)
Petiole/rachis indumentum	Lacking or nearly so.	Thick, brown.
Pinnae texture	Thick, sub-coriaceous.	Papery.
Inflorescence branching	Two orders (in proximal rachillae).	One order, rarely two.
Inflorescence orientation in fruit	Ascending to spreading (some rachillae might droop).	Pendulous.
Peduncular bract	Present.	Lacking.
Floral triad arrangement	Distichously (in proximal rachillae).	Spirally.
Staminate flower indumentum	Lacking or nearly so.	Velvet like.
Fruit	Mesocarp mealy and non-juicy.	Mesocarp fleshy and juicy.

Simply taken at face value, these differences seem substantial and significant. However, despite the breadth of collections that Heatubun et al. (2012) consulted (22, including types) when composing the description of *Areca novohibernica*, they likely still do not comprise the entire morphological variation within this species, which additional collections could provide. Other explanations might be that the differences can be attributed simply to varying interpretations of character states; some characters present on living material are not always present in herbarium material; or, because they came from cultivated sources, perhaps the plants in Tahiti might be of hybrid origin. Nonetheless, even if these differences prove significant and they suggest different taxa, the problem then becomes to which taxa should they be applied, *A. novohibernica*, *A. guppyana*, or perhaps even a new species?

To help me better establish and interpret these differences, I investigated the original provenance of the *Areca novohibernica* cultivated in Tahiti by looking at accession information of major botanical gardens in Hawai'i. From the 1950s through the early 1990s, all material was called *A. guppyana*, no matter its origin. Then, in the early 1990s, material from Papua New Guinea was called *A. novohibernica* and that from the Solomon Islands was called *A. guppyana*. By the early 2000s botanists and collectors began to suspect that *A. guppyana* and *A. novohibernica* might be the same species, which Heatubun et al. (2012) confirmed when they sunk or synonymized the former name into the latter name, and the latter name became more prevalent.

Table 2. Pre-1980 Wild-Collected Accessions of *Areca novohibernica* at Major Botanical Gardens in Hawai'i.

Garden/Institution	Accession No.	Year	Location/Country	Collector
Lyon Arboretum	L-67.0920	1967	Buka Island, Papua New Guinea	Benjamin Stone
Lyon Arboretum	L-72.0185	1972	New Britain, Papua New Guinea	---
Honolulu Botanic Gardens	75.0357 (**Fig. 56**)	1975	Solomon Islands	International Palm Society Seed Bank
Waimea Valley	75S1304	1975	Solomon Islands	International Palm Society Seed Bank
Waimea Valley	79P1036	1979	Solomon Islands	Geoff Dennis via Donald Hodel

Five, pre-1980, wild-collected accessions of *Areca novohibernica* are recorded for botanical gardens in Hawai'i (**Table 2**). All five were called *A. guppyana* at the time of accession Two, one from 1967 and the other from 1972, are from the Bismarck Archipelago in Papua New Guinea. Two others, both in 1975 and both from the same source, were from the Solomon Islands. The late Geoff F. C. Dennis of Honiara, Guadalcanal in the Solomon Islands likely collected and sent these 1975 accessions. Geoff, who, among many other interests and livelihoods, was a palm enthusiast and carried on a worldwide palm seed exchange with botanical institutions and enthusiasts. These four accessions would have been sufficiently old to have attained maturity and produce fruits by 1980. Geoff is nearly certain to have provided the fifth accession, also, which he sent to me and I germinated the seeds and shared seedlings with Waimea Valley in 1979; they likely would not have attained maturity by 1980.

What caught my eye about the four, pre-1980 accessions that would have likely attained maturity by 1980 is that International Palm Society Seed Bank distributed the two 1975 accessions (**Fig. 56**), not only to botanical gardens but also to individual Society members, meaning that Donn Carlsmith, from whose garden the Tahiti seeds originated, likely obtained some of them because he was an unusually well known and commanding personage in the Society and was developing a spectacular palm garden at the time. After five years, in 1980, the plants in the Carlsmith garden would have likely attained maturity and produced fruits. Thus, a good possibility exists that the ultimate origin of the Tahiti plants is the Solomon Islands.

56. *Areca novohibernica* (*98.0355*) at Wahiawā Botanical Garden of the Honolulu Botanic Gardens system was grown from seeds of *75.0357*, the same introduction from which the plants at our garden in Papeari, Tahiti likely descended.

This preliminary conclusion that the Tahiti plants might be from the Solomon Islands could be important; perhaps the material from the Solomon Islands and referred to as *A. guppyana* has substantial differences from the material from Papua New Guinea referred to as *A. novohibernica*. If so, it might explain the differences of the plants in Tahiti with the description in Heatubun et al. (2012). Of the 22 collections that Heatubun et al. (2012) examined, only three were from the Solomon Islands, and perhaps the differences I described for the Tahiti plants were originally present on these Solomon Island collections but simply missing from the three specimens examined. If further investigations prove the differences between the Tahiti plants and those described by Heatubun et al. (2012), then a strong and convincing case could be made for resurrecting *A. guppyana* from synonymy with *A. novohibernica*.

Notes

Areca is in the subfamily Arecoideae, tribe Areceae, and subtribe Arecinae along with *Nenga* and *Pinanga* (Dransfield et al. 2005, 2008; Baker et al. 2011; Baker and Dransfield 2016). They are dwarf to moderate, solitary or clustered, pleonanthic, monoecious, mostly understory shrub or tree palms. They have pinnate or undivided but pinnately ribbed leaves with tubular leaf bases usually forming a well defined crownshaft. The infrafoliar or less often interfoliar inflorescences or spicate or branched to three orders and bear a mostly membranous prophyll only and lack peduncular bracts. Flowers are in complete triads (center, later-opening pistillate flower flanked on each of two sides by earlier-opening staminate flowers) throughout each rachilla or in complete triads proximally with paired or solitary staminate flowers distally. Fruits have a smooth epicarp with apical stigmatic remains (Dransfield et al. 2008).

By bearing only one inflorescence bract (prophyll), the Arecinae is unusual among the Areceae because all other subtribes in the Areceae have two inflorescence bracts, a prophyll and a peduncular bract. Phylogenetically, the Arecinae is considered monophyletic (Asmussen et al. 2006, Lewis and Doyle 2002).

Areca is considered sister to *Nenga* and *Pinanga* (Loo et al. 2006, Norup et al. 2006, Baker et al. 2009, 2011). It is readily distinguished from *Nenga* and *Pinanga* when in flower because it has complete triads only in the proximal part of each rachilla with paired or solitary staminate flowers distally while *Nenga* has complete triads in the proximal three-fourths of each rachilla and *Pinanga* has complete triads throughout the entire length of each rachilla (Dransfield et al. 2008).

Areca is the type genus for Arecaceae, or palm family (Moore and Dransfield 1979, Dransfield et al. 2008) and includes about 40 to 50 species (Dransfield et al. 2008, Henderson 2009, Heatubun 2011, Heatubun et al. 2012) from India and Sri Lanka to China and south through Malesia to Papua New Guinea and the Solomon Islands. One species, *A. catechu*, is famous as the source of

betel nut, a stimulant, and the world's fourth most widely addictive substance after caffeine, nicotine, and alcohol (Norton 1998) although other species in the genus sometimes serve as substitute sources.

Malesia is the center of diversity for *Areca* with the primary center in West Malesia (west of Wallace's Line) with about 26 species. Secondary centers are in East Malesia (east of Wallace's line) to and including the Solomon Islands with five species and in the Philippines with about 11 species (Govaerts and Dransfield 2006, Heatubun et al. 2012).

Of the five species of *Areca* in East Malesia, Heatubun et al. (2012) compared *A. novohibernica* and *A. vestiaria*, suggesting they are the most similar species pair. They noted that the two taxa share several characters, including stilt roots, spirally arranged floral triads in the proximal half of each rachilla, connate staminate petals forming a cupular calyx, elongate and spathulate staminate petals, and fruits with a fleshy and juicy mesocarp. The two species are easy to distinguish based solely on gross morphological characters. For example, *A. novohibernica* is a small palm of solitary habit with a stem up to five cm in diameter and leaves with green leaf bases and up to six pinnae per side of the rachis while *A. vestiaria* is typically a moderate to large palm of clustered habit with stems from 7 to 15 cm in diameter and leaves with brilliant orange to red leaf bases and 11 to 16 pinnae per side of the rachis.

Heatubun (2012) noted that the prophyll of *Areca* is similar in color to the leaf bases. In *A. novohibernica* this statement is true but only while the inflorescence is in immature bud. When the inflorescences approach maturity and start to expand and eventually to shed and thrust off the prophyll, the prophyll is a golden yellow color (see **Figs. 10, 15, 32–34, 36–37**).

The existence of a peduncular bract in the cultivated Tahiti material of *Areca novohibernica* (see **Fig. 38**) is curious and confounding, and might be the most significant difference between the Tahiti material and that described by Heatubun (2012). The presence of a peduncular bract has phylogenetic implications and sets it apart from other material of this species as well as all other species in the Arecinae. Whether it is an anomaly or a consistent character needs further study.

Palms with stilt roots have always much enamored me, and they are one of the outstanding features that makes *Areca novohibernica* so charming. Frangi and Ponce (1985) and Tomlinson (1990) state that they are necessary for mechanical support and vascular function while Dransfield et al. (2008) suggest that stilt roots in palms are associated with swampy habitats or stabilization in rocky habitats, the latter of which appears to match up well with the limestone habitat of some populations of *A. novohibernica*, especially those on low, flat islands composed of rugged karst limestone.

Cultivation

Areca novohibernica is an understory plant from moist to wet, tropical forests; thus, sustained, year-round environmental conditions of shade (2,700 to 10,700 lux), temperature (24 to 32 C day, 21 to 24 C night), and relative humidity (70% and above) are essential for adequate growth (**Fig. 57**). Root zones must be moist but well drained and not soggy. In subtropical and temperate regions this species must be grown in an environmentally controlled greenhouse, but even then it can prove difficult to grow. Indeed, stilt-root palms have a reputation of being difficult to grow in greenhouses in subtropical and temperate regions and the environment must be as described above. Excellent, recent reviews of palm horticulture are Broschat et al. (2014) and Hodel (2012).

Propagation

Seed is the only way to propagate *Arec novohibernica* and successful germination is relatively easy to attain. Perhaps in the future micro culture will be able to produce new plants. Select full size, red, freshly fallen fruits or ones that knock very easily off the infructescence.

Several successful methods have been devised for treating and planting palm seeds and all encompass the same principles: fresh, fully mature fruits, cleaned of the mesocarp; cleaned seeds placed in a clean, moist but well aerated medium in clean containers; and the temperature maintained between 25 to 32 C.

Fruits can be scraped clean of the mesocarp immediately after harvesting or placed in a plastic bag for a couple of weeks until the mesocarp is soft and fragrant or aromatic and easily rubbed or scraped off. Once the mesocarp is removed, wash and clean the seeds then allow them to air dry indoors or in the shade for a day or two at room temperature.

Germination media should be porous, well aerated and well drained yet hold sufficient water. Clean, disease-free media composed of an organic component like peat moss or coir, for water-holding and an inorganic component like perlite, sand or volcanic cinders for aeration and porosity should meet these requirements. Place the clean, disease-free medium in clean, disease-free pots or other containers.

To plant the seed, submerge them half-way into the medium so that the imaginary equator running the long way around the seed (proximal to distal end) is at the level of the medium; thus, the seed would be half buried and half exposed with the embryo right at the medium line. Water well and cover with plastic. Place the planted container off the ground out of full sun in a warm location and maintain the temperature in the appropriate range described earlier. Germination should occur in about three to eight weeks.

57. Papeari, Tahiti in French Polynesia is a wet, tropical locale, perfect for the growth of *Areca novohibernica*.

In our garden in Tahiti, fruits simply fall on the ground and after the mesocarp has disintegrated the seeds germinate right beneath the mother palm. Nonetheless, to ensure highest germination, we place the seeds in ground beds of 100% cleaned, fine, black, river sand, submerging them half-way in the sand as described earlier. We cover the germination beds with coconut (*Cocos nucifera*) leaves to provide shade from the intense tropical sun. Typically, it rains sufficiently in our area of Tahiti to keep the seeds and medium moist. If necessary, though, we water to keep the medium evenly moist.

Potting Up and Growing On

Once the seedlings produce their first bifid leaf, remove them carefully from the germination bed or container and pot them up individually into 3.8-l (15-cm) containers. Soil for container growing should be porous, well aerated and well drained yet hold sufficient water and nutrients and be slow to break down (Broschat et al. 2014). Maintain potted seedlings in partial shade. When the young plants are firmly rooted and roots have filled the 3.8-l container, shift them up into 20-l containers. When the roots have filled out this larger container, they are ready for planting out.

Planting Location

Areca novohibernica attain their fullest beauty and elegance when protected from the wind and sun. For maximum beauty and landscape impact, locate palms in a wind-protected site with filtered sun. *Areca novohibernica* will perform well in just about any type of soil if it is well drained, holds nutrients, and is kept evenly moist.

Maintenance

Keep root zones evenly moist. Apply a palm-special fertilizer, one with an N-P-K-Mg ratio of 2-1-3-1 or similar ratio. Maintaining five to eight cm of good quality mulch from the trunk out to at least two meters is beneficial. Remove dead, brown leaves and old inflorescences. Gently pull on them to see if they fall away easily. If not, they can be removed by neatly and carefully cutting them as close to the trunk as possible without damaging the trunk. Pulling and tearing them off the trunk with force can cause permanent, unsightly wounds that can serve as disease and pest entry sites. Serious pests and diseases have yet to be documented for *Areca novohibernica* but the usual suspects are scales and mealybugs (Broschat et al. 2014, Hodel 2012).

Conclusions

Without a doubt, the legendary crown of heavy-looking but gracefully arching leaves with few, broad, prominently nerved, serrated-tipped pinnae, bright green crownshaft, and showy, relatively compact clusters of bright red fruits, nearly the size of ping pong balls, all held on an impossibly slender, tan stem supported by a rather dainty cone of conspicuous, dark brown stilt roots, make *Areca novohibernica* the quintessential palm. Always one of my favorites, I have had immense pleasure observing it grow and progress through multiple generations for over 40 years in our garden just a few meters from the distressingly ever-rising lagoon in Papeari, Tahiti, French Polynesia. The final taxonomic and nomenclatural disposition of these Tahiti plants is uncertain, but I suspect that their substantial differences will set them apart from *A. novohibernica*. Furthermore, I suspect that the best name for them will be *A. guppyana*, for me a more pleasing, sentimental, and intimate epithet conjuring up over 40 years of fond memories. Whatever the outcome, though, they will always be *A. guppyana* to me.

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Literature Cited

Asmussen, C. B., J. Dransfield, V. Deickmann, A. S. Barfod, J.-C. Pintaud, and W. J. Baker. 2006. A new subfamily classification of the palm family (Arecaceae): evidence from plastid DNA phylogeny. Bot. J. Linn. Soc. 151:15–28.

Baker, W. J., C. B. Asmussen, M. W. Chase, J. Dransfield, F. Forest, M. M. Harley, V. Savolainen, N. W. Uhl, and M. Wilkinson. 2009. Complete generic-level phylogenetic analyses of palms (Arecaceae) with comparisons of supertree and supermatrix approaches. Syst. Biol. 58: 240–256.

Baker, W. J. and J. Dransfield. 2016. Beyond Genera Palmarum: progress and prospects in palm systematics. Bot. J. Linn. Soc. 182(2): 207-233. *https://doi.org/10.1111/boj.12401*

Baker, W. J., M. V. Norup. J. J. Clarkson, T. L. P. Couvreur, J. L. Dowe, C. E. Lewis, J.-C. Pintaud, V. Savolainen, T. Wilmot, and M. W. Chase. 2011. Phylogenetic relationships among arecoid palms (Arecaceae: Arecoideae). Ann. Bot. 108)8): 1417-1432. doi: *10.1093/aob/mcr020*

Baker, W. J., L. T. Smith, A. S. Barfod, R. Camara-Leret, J. L. Dowe, J. Dransfield, C. D. Heatubun, P. Petoe, J. H. Turner, and S. Zona. 2024 (in prep.). Palms of New Guinea. Royal Botanic Gardens, Kew.

Beccari, O. 1914a. Manipolo di Palme Nuove Polinesiane. Webbia 4: 253–291.

Beccari, O. 1914b. Neue Palmen Papuasiens. Bot. Jarhb. Syst. 52(1–2): 23–39.

Broschat, T. K., D. R. Hodel and M. L. Elliott. 2014. Ornamental Palms: Biology and Horticulture. Horticultural Reviews 42: 1–121.

Burret, M. 1936. Neue Palmen aus Neuguinea III. Zugleich Palmen von den Salomo-Inseln. Notizbl. Bot. Gart. Berlin-Dahlem 13: 65–101.

DB. 2022. Deutsche Biographie. Carl Lauterbach. *https://www.deutsche-biographie.de/sfz48540.html*

Dowe, J. L. 1998. *Areca guppyana*. The IUCN Red List of Threatened Species 1998: e.T38188A10099820. http://dx.doi.org/10.2305/IUCN.UK.1998.RLTS.T38188A10099820.en Accessed: 26 October 2023.

Dransfield, J., N. W. Uhl, C. B. Asmussen, W. J. Baker, M. M. Harley, and C. E. Lewis. 2005. A new phylogenetic classification of the palm family, Arecaceae. Kew Bulletin 60: 559-569.

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. Royal Botanic Gardens, Kew, England; International Palm Society, Lawrence, Kansas, U. S. A.; and L. H. Bailey Hortorium, Cornell University, Ithaca, New York.

Frangi, J. L. and M. M. Ponce. 1985. The root system of *Prestoea montana* and its ecological significance. Principes 29: 13–19.

Govaerts, R. and J. Dransfield. 2005. World Checklist of Palms. Royal Botanic Gardens, Kew, England.

Heatubun, C. D. 2011. Seven new species of *Areca* (Arecaceae). Phytotaxa 28: 6–26.

Heatubun, C. D., J. Dransfield, T. Flynn, S. S. Tjitrosoedirdjo, J. P. Mogea, and W. J. Baker. 2012. A monograph of the betel nut palms (*Areca*: Arecaceae) of East Malesia. Bot. J. Linn. Soc. 168: 147–173.

Henderson, A. 2009. Field Guide to Palms of Southern Asia. Princeton University Press, Princeton, New Jersey, U. S. A.

Hill, A. W. and E. Salisbury. 1947. Index Kew. Suppl. 10: 19.

Hodel, D. R. 2012. The Biology and Management of Landscape Palms. The Britton fund, Inc. Wester Chapter, International Society of Arboriculture, Porterville, CA, U.S.A.

Independent. 2000. "*Evacuation from Rising Seas Planned for Pacific Islanders: 1,000 flee as sea begins to swallow up Pacific islands.*" *The Independent. UK. 29 November 2000.* Accessed: 26 October 2023.

IUCN. 1998. *Areca guppyana*. Red List of Threatened Species. https://www.iucnredlist.org/species/38188/10099820#geographic-range Accessed: 26 October 2023.

IUCN. 2023. Red List of Threatened Species. *https://www.iucnredlist.org/search?query=Areca%20novohibernica&searchType=species* Accessed: 26 October 2023.

Lauterbach, C. 1911. Beiträge zur Flora von Neu-Mecklenburg. Bot. Jarhb. Syst. 45(3): 354–365.

Lewis, C. E. and J. J. Doyle. 2002. A phylogenetic analysis of the tribe Areceae (Arecaceae) using two low-copy nuclear genes. Pl. Sust. Evol. 236: 1–17.

Loo, A. H. B., J. Dransfield, M. W. chase, and W. J. Baker. 2006. Low-copy nuclear DNA, phylogeny, and the evolution of dichogamy in the betel nut palms and their relatives (Arecinae: Arecaceae). Mol. Phylo. Evol. 39: 598–618.

Moore, H. E., Jr., and J. Dransfield. 1979. Typification of Linnean palms. Taxon 28: 59–70.

NHN. 2022a. Carl Adolf Georg Lauterbach. *https://www.nationaalherbarium.nl/fmcollectors/L/LauterbachCAG.htm*

Norton, S. A. 1998. Betel: consumption and consequences. Journal of American Academy of Dermatology 38: 81–88.

Norup, M. V., J. Dransfield, M. W. Chase, A. S. Barfod, E. S. Fernando, and W. J. Baker. 2006. Homoplasious character combinations and genetic delimitation: a case study from Indo-Pacific arecoid palms (Arecaceae). Amer. J. Bot. 93: 1065–1080.

Stafleu, F. A. and R. S. Cowan. 1983. Taxonomic Literature 2, 2nd ed., vol. 4. Scheltema & Holkema, Bohn and dr. W. Junk b. v., Utrecht/Antwerpen, The Hague/Boston. *https://www.sil.si.edu/DigitalCollections/tl-2/browse.cfm?vol=4#page/158*

Tomlinson, P. B. 1990. The Structural Biology of Palms. Clarendon Press, Oxford, England.

Turland N. J., Wiersema J. H., Barrie F. R., Greuter W., Hawksworth D. L., Herendeen P. S., Knapp S., Kusber W.-H., Li D.-Z., Marhold K., May T. W., McNeill J., Monro A. M., Prado J., Price M. J. and Smith G. F. 2018: International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017. – Glashütten: Koeltz Botanical Books. – Regnum Veg. 159. *https://doi.org/10.12705/Code.2018*

Van Steenis-Kruseman, M .J. 1950. Malaysian Plant Collectors and Collections. Flora Malesiana, ser. 1, vol. 1. Noordoff-Kolff N. V., Jakarta. 639 pp., I-CLII front matter and introductory chapters, and index. Lauterbach pp.313–314. *https://www.biodiversitylibrary.org/page/33913007#page/5/mode/1up*

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