Chrysalidocarpus hamannii (Arecaceae): A Splendid, New Species from Cultivation

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Abstract

***Chrysalidocarpus hamannii* (Arecaceae), a splendid, large, tall, solitary, plumose-leaved palm found cultivated in a southern California garden, is named and described as new, and is profusely illustrated, discussed, and compared to related species.**

Introduction

In 1993, Gregg Hamann, a palm and cycad collector in El Cajon, California near San Diego, obtained a single-trunked species of *Chrysalidocarpus* (then it was called *Dypsis*) in a 3.8-liter container from the late Mardy Darian, the well known, colorful, and flamboyant raconteur and palm and exotic plant aficionado in not-too-distant Vista. At the time, Mardy identified the palm as *D. pilulifera*, and Gregg grew it on in his greenhouse until it was in a 19-liter container and then planted this palm in the well drained, loamy soil in his splendid, rich, and diverse, 0.6-hectare, hilltop garden where it thrived, growing moderately and steadily and attaining maturity in 2020.

Although Darian had identified the plant as *Dypsis pilulifera* (now *Chrysalidocarpus pilulifer*), once it attained maturity it was likely not that species. Gregg was unable to attach a name to this palm, and several Madagascar palm enthusiasts were equally at a loss to identify it. Gregg asked me to give it a try, and I accepted the challenge, making more than several, eight-hour travel-time round trips in legendary southern California traffic from my home near Los Angeles to El Cajon to observe Gregg's palm in various growth stages and make a collection.

Finally, with a complete collection of this handsome palm in hand, including staminate and pistillate flowers and fruit, and consulting the most complete and detailed account of Madagascar palms available (Dransfield and Beentje 1995) and subsequent accounts of new species of large, solitary, canopy *Chrysalidocarpus* (Dransfield and Marcus 2002 [*C. carlsmithii*], 2013 [*C. leucomallus*]; Dransfield et al. 2023a [*C. titan*], 2023b [*C. hankona*]; Eiserhardt et al. 2018 [*C. mijoroanus*]; Hodel et al. 2005 [*C. robustus*]), I concluded that Gregg's palm was an undescribed species and new to science.

1. *Chrysalidocarpus hamannii* is a large, solitary, unarmed, tree palm to at least 10 m tall. All photographs are of *Hodel 4080*, the type plant, and © 2025 by Donald R. Hodel unless noted otherwise.

2. Gregg Hamann provides scale for his namesake, *Chrysalidocarpus hamannii*.

Because Gregg has distributed seeds and seedlings of this splendid palm, it will likely become more common in cultivation. Thus, here I take great pleasure in naming this palm in Gregg's honor, and describing, profusely illustrating, discussing, and comparing it to related species. The description is mostly from fresh, undried, living material.

Taxonomy

Chrysalidocarpus hamannii Hodel spec. nov. Type: CULTIVATED. U. S. A. California. San Diego County: El Cajon, garden of Gregg Hamann, 18 July 2025, *Hodel 4080* with Gregg Hamann, Robert Burtscher, and Linda Ohara (Holotype LASCA [consisting of multiple sheets with the same label and constituting a single gathering]; Isotype BH). **Figs. 1–42**.

Diagnosis: Within its genus, *Chrysalidocarpus hamannii* can be distinguished and included in a group of several species by a combination of characters, including its large, solitary habit; large, long leaves with numerous pinnae clustered in groups and fanned to give a plumose effect; and seeds with homogeneous endosperm. More specifically, *C. hamannii* can be distinguished within this previous group by a set of unique characters, including leaves with newly exposed leaf bases initially pink to maroon changing to green but lightly covered with a white-waxy bloom, distally becoming rather densely covered with small, silver-gray scales intermixed with reddish-brown-to-tan-centered, white-fringed scales, petioles and rachises with silver-gray scales, and pinnae clustered in groups of as many as 15.

Etymology: The specific epithet honors Gregg Hamann, who grew this palm to maturity, recognized that it might be different, and persistently and, in the end, successfully persuaded me to take a serious, keen interest in it.

Habit: Large, solitary, unarmed, monoecious, pleonanthic tree palm to at least 10 m tall (**Figs. 1–2**).

Trunk: During the establishment phase, which can last many years, the developing trunk or stem is subterranean and saxophone-shaped with exceedingly short, congested, and compact internodes, eventually the trunk emerges above ground and initiates more traditional growth, then to at least 6 m tall (**Fig. 3**), ca. 22 cm diam. at standard height, flared at base to ca. 30 cm diam. (**Fig. 4**), narrowed at crownshaft to ca. 14 cm diam., green with a slight glaucous bloom, smooth except ringed with leaf scars, these 1.5–1.8 cm wide, tan, internodes to ca. 25 cm proximally to ca. 10 cm distally.

Leaves: 6 to 9, pinnate, more or less tristichous, ascending to spreading (**Fig. 5**), ca. 4.85 m long; **base** to ca. 115 cm long, tubular, forming a prominent crownshaft (**Fig. 6**), ca. 50 cm

3. Gregg Hamannii provides scale for the trunk of *Chrysalidocarpus hamannii*.

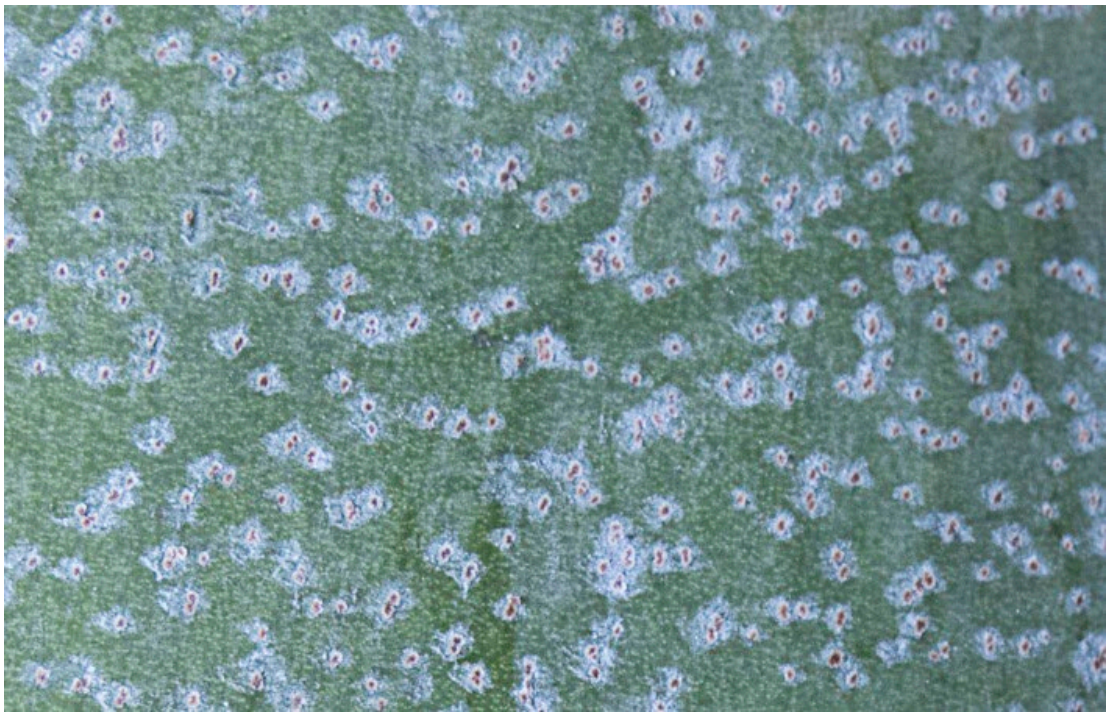
4. The base of the trunk of *Chrysalidocarpus hamannii* is flared to about 30 cm in diameter.

5. Leaves of *Chrysalidocarpus hamannii* are pinnate, more or less tristichous, plumose, and ascending to spreading but downward curved at the tip.

6. *Chrysalidocarpus hamannii* has a prominent, well developed, slender crownshaft. Note the waxy-white, glaucous bloom on the leaf base and infrafoliar inflorescences.

7. *Chrysalidocarpus hamannii* has pink to red leaf bases when newly exposed. Note the waxy-white, glaucous bloom.

8. The newly exposed leaf base of *Chrysalidocarpus hamannii* is strikingly pink to red. Note the waxy-white, glaucous bloom and orangish prophyll and red peduncular bract of the emerging inflorescence. © 2025 by Gregg Hamann.



9. Abaxially, leaf bases of *Chrysalidocarpus hamannii* are minutely white spotted and overlaid with reddish brown-to-tan-centered, white-fringed scales distally.

10. Abaxially, leaf bases of *Chrysalidocarpus hamannii* are densely covered with silver-gray to white scales that become intermixed with reddish brown-to-tan-centered, often white-fringed scales distally.

11. Abaxially, leaf bases of *Chrysalidocarpus hamannii* are covered with reddish brown-to-tan-centered scales distally.

12. Abaxially, leaf bases of *Chrysalidocarpus hamannii* become densely covered distally with silver-gray scales, which continue on to the petiole and rachis.

13. Adaxially, leaf bases of *Chrysalidocarpus hamannii* are smooth, glabrous, and glossy yellow.

14. The leaf base of *Chrysalidocarpus hamannii* has a faint pink blush when cut, like the inflorescence peduncle and rachis.

15. Gregg Hamann holds the leaf blade of his namesake, *Chrysalidocarpus hamannii*. Note the arching tip curved downward distally.

16. Abaxially, especially proximally, the rachis of *Chrysalidocarpus hamannii* is densely covered with the same silver-gray scales as the petiole and distal leaf base.

17. Adaxially, the rachis of *Chrysalidocarpus hamannii* transitions from channeled with sharp margins to bearing a distinctly, elevated, narrow ridge distally.

18. Gregg Hamann holds leaf of *Chrysalidocarpus hamannii* showing how they are irregularly arranged and clustered in groups.

19. Pinnae of *Chrysalidocarpus hamannii* are irregularly arranged and clustered in groups.

20. Gregg Hamann is hiding behind the leaf of his namesake *Chrysalidocarpus hamannii*, showing how the pinnae are fanned in multiple planes to create a plumose effect. Note the pendulous pinnae tips.

21. Although arranged in multiple planes, pinnae of *Chrysalidocarpus hamannii* on opposing sides of the rachis tend to form a V-shaped blade in transverse view.

22. Pinnae tips of *Chrysalidocarpus hamannii* are curled downward and pendulous.

23. Pinnae tips of *Chrysalidocarpus hamannii* are curled downward and pendulous, adding to the plumose appearance.

24. Abaxially, pinnae of *Chrysalidocarpus hamannii* have thickened margins and a flat to slightly immersed midrib with scattered ramenta.

25. Inflorescences of *Chrysalidocarpus hamannii* are infrafoliar in flower and fruit and ascending-spreading to drooping.

circumference at base and 52 cm circumference at middle, ca. 9 mm thick at base, tapering to ca. 1 mm thick along open, vertical margin at petiole, ca. 3.5 cm thick dorsally at petiole, abaxially pink to reddish when recently exposed (**Figs. 7–8**) becoming green and thinly covered with white-waxy indument throughout (**Figs. 7–8**), distally minutely white-spotted (**Fig. 9**) and with small, ca. 1 mm wide, irregularly rounded, silver-gray to white scales (**Fig. 10**) intermixed with reddish-brown-to-tan-centered, often white-fringed scales (**Figs. 11, 9**) merging with silver-gray scales of the petiole (**Fig. 12**), adaxially smooth, glabrous, glossy yellow with a light pinkish blush proximally (**Fig. 13**, with a faint pink blush when freshly cut (**Fig. 14**), drying coppery; **petiole** 25–30 cm long, ca. 7 cm wide and 2 cm thick at base, rounded abaxially, margins sharp, knife-like, densely clothed abaxially with silver-gray scales (, less densely clothed adaxially allowing green color of petiole to show, with a faint pink blush when freshly cut; **blade** ca. 3.4 m long, ca. 1.5 m wide just proximal of mid blade, arching and curved downward in distal ca. 1 m (**Fig. 15**); **rachis** ca. 3.3 m long, base ca. 6.5 cm wide, ca. 1.5 cm thick, tapering to ca. 2 mm wide and thick at ultimate pinna, rounded abaxially throughout and with similar indument as petiole (**Fig. 16**), in proximal ca. 80 cm slightly convex adaxially and then transitioning distally to a sharply angled ridge (**Fig. 17**), this ca.10 mm high proximally and 1 mm high distally, with a faint pink blush when freshly cut; **pinnae** 160–167 per each side of rachis, clustered in groups of 3 to 15 (**Figs. 18–19**) and fanned in multiple planes to give plumose effect (**Fig. 20**), although arranged in multiple planes the pinnae on opposing side tend to form a V-shaped blade in transverse section (**Fig. 21**), pinnae just proximal of mid-blade largest, these ca. 82 × 3.5 cm, most proximal pinnae ca.70–76 × 1.7 cm, most distal pinnae to ca. 18 × 1 cm, thin-leathery, tips pendulous (Figs. **22–23)**, margins thickened and appearing slightly revolute, dark green adaxially, lighter green abaxially, midrib flat to very slightly impressed abaxially, other veins barely visible, midrib prominently raised and knife-like adaxially, primary lateral veins visible, ramenta scattered along midrib abaxially (**Fig. 24**), these 1–1.5 cm long, scurfy, grayish brown, medifixed with both ends ascending.

Inflorescences: 2(–3), infrafoliar in flower and fruit, ca. 1.4 × 1.5 m, ascending-spreading to drooping (**Figs. 25–27**), branched to 3 orders (**Fig. 28**); **peduncle** ca. 31 cm long, ca. 20 cm wide at base where attached to trunk, ca. 9 cm wide and 5 cm thick at prophyll attachment, lime green, glabrous (**Fig. 29**), densely and minutely white-spotted (**Fig. 30**), with a faint pink blush when freshly cut; **prophyll** attached ca. 10 cm from base, ca. 33 cm long, ca. 24 cm wide when opened and flattened, bicarinate, leathery, abaxially reddish brown, adaxially coppery brown (**Fig. 31**); **peduncular bract** attached ca. 5 cm distal of prophyll attachment, ca. 89 cm long, ca. 33 cm wide when opened and flattened, ca. 20 cm diam. at base, 4–5 mm thick, bifid for ca. 16 cm apically, lobes acute-rounded and ca. 16 cm wide, leathery, abaxially scarlet at base changing to burgundy and green tinged (**Fig 32**) with burgundy longitudinal stripes distally, adaxially yellow-cream (**Fig. 33**) tinged with pink distally; semi-circular scar ca. 6 cm distal of peduncular bract attachment but lacking a bract; **rachis:** ca. 77 cm long, tapering to ca. 8 mm diam. at apex, lime-green and

26. Inflorescences of *Chrysalidocarpus hamannii* are infrafoliar and ascending-spreading to drooping in flower as shown here.

27. Inflorescences of *Chrysalidocarpus hamannii* are infrafoliar and ascending-spreading to drooping in fruit as shown here.

28. The three orders of branching are clearly depicted on this inflorescence of *Chrysalidocarpus hamannii*.

29. The peduncle of *Chrysalidocarpus hamannii* is lime green, faintly and minutely white spotted, and with a slight, waxy-white glaucous bloom. Note the scars of the prophyll (left) and peduncular bract just to its right. A semi-circular scar (right) represents a rudimentary peduncular bract that did not develop.

30. The peduncle of Chrysalidocarpus hamannii is densely white-spotted.

31. The prophyll of *Chrysalidocarpus hama*nnii is bicarinate, leathery, abaxially reddish brown, adaxially coppery brown.

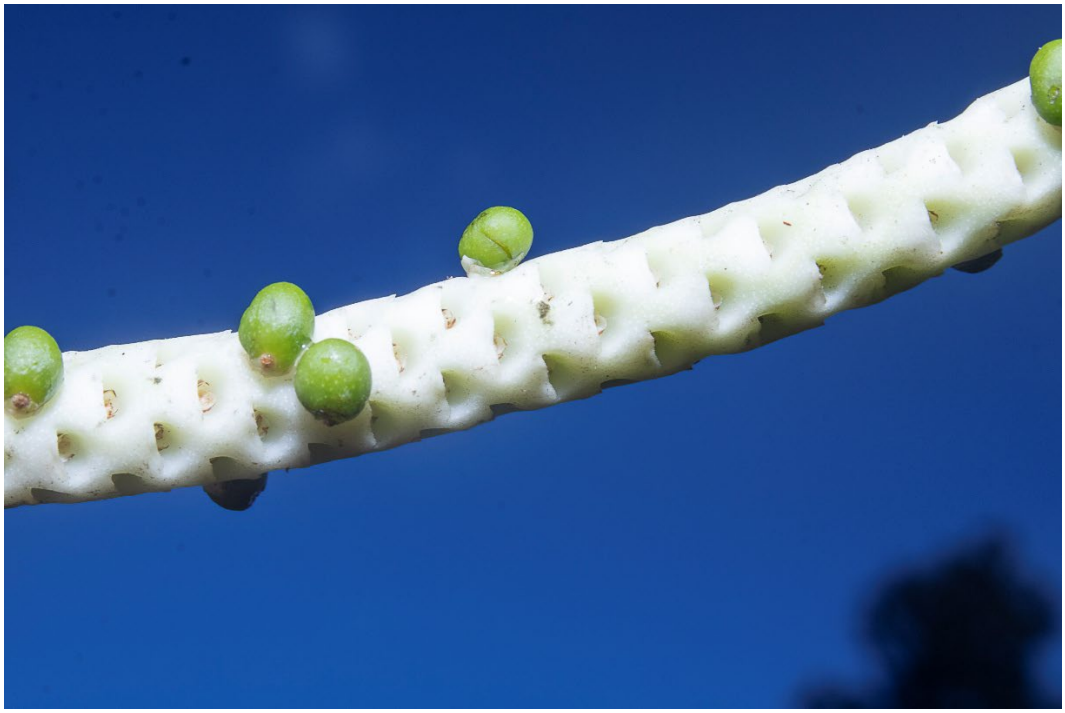
32. Gregg Hamann holds the entire peduncular bract of his namesake *Chrysalidocarpus hamannii*, which is mostly burgundy colored abaxially.

33. Gregg Hamann holds the entire peduncular bract of his namesake *Chrysalidocarpus hamannii*, which is glossy, creamy yellow adaxially.

34. The rachis and main branches of the inflorescence of *Chrysalidocarpus hamannii* turn brownish in fruit and when dry, the color of which can extend on to the distal portion of the peduncle.

35. *Chrysalidocarpus hamannii* has large rachis bracts subtending the most proximal 1st-order branches and these have a conspicuous, broadly rounded median point.

36. Rachis bracts of *Chrysalidocarpus hamannii* subtending smaller branches and rachillae are small, low, and truncated and lack a median point.



37. Rachillae of *Chrysalidocarpus hamannii* just past anthesis and in very young fruit are cream-colored. Note the floral clefts or pits.

minutely white-spotted as peduncle, rachis and peduncle turning dark brown in fruit and when dry (**Fig. 34**), holding ca. 22 branches and 14 simple rachillae, most proximal branch largest and most complex, sub-peduncle ca. 5 cm wide and 2 cm thick at base, sub-rachis ca. 33 cm long, ca. 9 mm diam. at apex, holding ca. 6 branches and 20 simple rachillae, most proximal branches largest and most complex, sub-sub-peduncle ca. 2 cm long, ca. 2.7 cm wide at base, rachis lacking; rachis branches and rachillae subtended on their proximal side with a low, semi-circular or crescent-shaped, whitish to cream-colored bract, those subtending most proximal 1st-order branches to ca. 7 cm wide with a rounded median point to 7 ca. 7 mm high (**Fig. 35**), those subtending higher-order branches and rachillae smaller, lower, (**Fig. 36**), truncate; **rachillae** 14–29 cm long, 0.8–1 × 0.7–0.8 cm at base, tapering to ca. 4 × 4 mm distally, and abruptly narrowed into an acute point 3–15 mm long, spreading and slightly drooping, at anthesis greenish yellow to cream-colored (**Fig. 37**) but sometimes tinged with pinkish brown here and there, minutely white-spotted; becoming more cream-colored in fruit.

Flowers: In triads of a center, later-opening pistillate flanked on each of 2 sides by earlier-opening staminate, triads in clefts ca. 3 mm long, 2.5 mm wide, 1–1.5 mm deep and spirally arranged, these ca. 2 mm distant in a spiral, spirals ca. 2 mm distant, triads and clefts more distant proximally, there ca. 3 mm distant within a spiral and spirals ca. 3 mm distant, closer distally, then ca. 1.5 mm distant within a spiral and spirals ca. 1.5 mm distant; **staminate flowers** at anthesis ca. 4.5 × 5–6 mm (**Fig. 38**); **calyx** 1–1.5 × 3 mm, sepals connate (and/or imbricate?) in proximal 1/3–2/3, white with narrow, brown margins; **petals** 2.25–3 × 2.25–3 mm, broadly ovate, imbricate in proximal 1 mm, sometimes erect but mostly spreading, valvate and free distally, clear-colored to white proximally, yellowish distally, slightly transparent; **stamens** 6, 3 opposite petals and 3 between petals, 3.5–4.25 mm high, ca. twice the height of petals; **filaments** 3.5–4 mm long, slender, 0.4–0.5 mm diam., flaring proximally toward base and there flattened and wider, straight to flexuous, clear-colored; **anthers** ca. 1 mm long, elliptic, bi-lobed, medifixed near base, clear-colored to white; **pistillode** 2–2.5 × 0.6 mm, ca. equaling petals in height, ca. 1/2 the height of stamens, columnar, clear-colored to whitish, truncate and slightly and briefly fluted apically and there whitish. **Pistillate flowers** at anthesis 4 × 2.8–3 mm, ovoid (**Fig. 39**); **calyx** ca. 2.25 × 3 mm; sepals broadly ovate, imbricate in proximal 1/2–2/3, clear-colored, faintly longitudinally veined; **petals** ca. 2.5 × 2.5 mm, broadly ovate to triangular with a mucronate apex, imbricate in proximal 1/2–2/3, clear-colored to whitish, opaque; **gynoecium** 3.5–4 × 2.5 mm, broadly cone-shaped, exceeding and exserted above petals by 1–1.5 mm, truncate apically, stigmatic surface poorly differentiated, clear-colored to white.

Fruits: 10–12 × 7.5–8 mm (dried), dark brown (**Fig. 40**), 12–14 × 8–9 mm (fresh), orangish (Figs. **41–42**); seeds 8–9 × 7–8 mm, endosperm homogeneous (**Fig. 40**), embryo basal.

38. Staminate flowers of *Chrysalidocarpus hamannii* are whitish with stamens exceeding the petals.

39. Pistillate flowers of *Chrysalidocarpus hamannii* are clear-colored to whitish.

40. Dried fruits of *Chrysalidocarpus hamannii* are dark brown. Note the seeds with homogeneous endosperm.

41. Fresh fruits of *Chrysalidocarpus hamannii* are orangish.

42. The orangish ripe fruits of *Chrysalidocarpus hamannii* are a pleasing contrast to the whitish to cream-colored rachillae.

Discussion

Chrysalidocarpus hamannii is in Group 1 in Dransfield and Beentje (1995), which includes solitary, tall, mostly large to massive, canopy or emergent palms with numerous pinnae. Within Group 1, *C. hamannii* is in an informal group of palms with pinnae clustered in groups and fanned to lend a plumose appearance to the leaf and seeds with homogenous endosperm. This informal group includes species like *C. hovomantsina*, *C. malcomberi*, *C. mananjarensis*, *C. pilulifer*, *C. prestonianus*, and *C. tokoravina*. Within this informal group. *C. hamannii* keys out closest to *C. hovomantsina*, *C. malcomberi*, *C. mananjarensis*, and *C. pilulifer*. **Table 1** provides a character matrix comparing these four species with *C. hamannii*.

In addition to the distinguishing characters listed in the earlier diagnosis, *Chrysalidocarpus hamannii* also differs from most species in this group by its staminate flowers with longer or taller stamens and pistillode; pistillate flowers with a taller or longer gynoecium; and larger fruits and seeds. Unfortunately, the pistillode, gynoecium, and fruits are unknown for *C. hovomantsina,* and the gynoecium is unknown for *C. malcomberi*, but other characters amply distinguish *C. hamannii* from these two species.

Madagascar has yielded numerous new species of *Chrysalidocarpus* (then mostly *Dypsis* and *Neodypsis*) over about the last 30 years and since Dransfield and Beentje (1995), many from cultivation, some of which I have authored or co-authored (Dransfield et al. 2014; Dransfield and Marcus 2002, 2013; Dransfield et al. 2023a, 2023b; Hodel 1993, 2020, 2023; Hodel et al. 2005, 2009; Hodel and Marcus 2004). In the most recent of these (Hodel 2023), I raised and discussed the possibility or even likelihood that cultivated collections of numerous, closely related palm species might be a source of hybrid progeny unless pollen-exclusion techniques were employed, rather than being a typically, long-touted method to perpetuate and conserve species and genetic material. Hybridization in cultivation is a distinct and worrisome possibility that lately has concerned me greatly.

Thus, I considered the possibility that *Chrysalidocarpus hamannii* could be a hybrid; however, I suspect that it is not a hybrid because, although provenance records are lacking, Darian had the plant at least in the early 1990s, more likely in the 1980s, well before unusual, *Chrysalidocarpus* species cultivated in Hawai'i, California, and elsewhere had matured and could have produced hybrid seeds. Darian had contacts in Madagascar who occasionally supplied him with wild-collected seeds, and he visited Madagascar and collected there himself. While a few cultivated collections of some Malagasy palms existed in Madagascar about 1990, mostly in botanical gardens, based on conversations I had with Darian in the 1980s and 1990s and how he sourced seeds of Malagasy palms, I suspect that *C. hamannii* was grown from wild-collected seeds and is likely not a hybrid.

Table 1. Comparison of some critical characters of *Chrysalidocarpus hamannii* with *C. hovomantsina*, *C. malcomberi*, *C. mananjarensis*, and *C. pilulifer*.

Character	C. hamannii	C. hovomantsina	C. malcomberi	C. mananjarensis	C. pilulifer
Leaf					
Base	thinly covered with a white-waxy bloom, distally with small, silver-gray scales intermixed with reddish-brown-to-tan-centered, white-fringed scales	white-waxy with dense, golden brown hairs distally	white-waxy	large, white-waxy scales	white-waxy with large, reddish, tomentose scales
Petiole	dense, silver-gray scales	dense, brown indument	glabrous	large, white-waxy scales	white-waxy with reddish tomentose scales
Pinnae	160–167 per side, in groups of 3–15	80–90 per side, in groups of 3–6	135–188 per side, in groups of 2–8	121–149 per side, in groups of 3–7	70–144 per side, irregularly grouped
Flower					
Filament (length)	3.25–4 mm	1.3 mm	1 mm	1.7–2 mm	1.7–1.9 mm
Pistillode (height)	2–2.5 mm	---	1.5 mm	1.5–1.7 mm	1.8 mm
Gynoecium (height)	3.5–4 mm	---	---	2–3.5 mm	2–2.8 mm
Fruit (length × width)	10–12 × 7–8 mm	---	8–10 × 4–7 mm	4–6 × 4–6 mm	5–7 × 5–7 mm
Seed (length × width)	8–9 × 7–8 mm	9–10 × 7–8 mm	5.5 × 4 mm	3.6–4.5 × 3.5–4.5 mm	4–5 × 4–5 mm

Because nothing is known of the provenance of *Chrysalidocarpus hamannii* in Madagascar, we can only extrapolate from the natural history of related species to gain an understanding of its ecology. *Chrysalidocarpus hamannii* is likely a canopy-emergent species and denizen of moist to wet, mixed forests on slopes of hills and mountains from low to middle elevations.

An especially colorful and handsome palm, *Chrysalidocarpus hamannii* has striking, pink to dark red or maroon, newly exposed leaf bases abaxially, whose brilliant color lasts about three weeks before transitioning to green. A thin coating of white wax provides a glaucous bloom. The distal portion of the abaxial leaf base has small, becoming rather densely placed, silver-gray scales intermixed with reddish-brown-to-tan-centered, white-fringed scales. Adaxially, fresh leaf bases are glossy yellow with a light pinkish blush proximally.

A photo of Gregg's palm in his El Cajon garden when it was a trunkless, three-leaf juvenile with leaves about 1.5 meters long is in Palmpedia (2025). The photograph, misidentified as *Dypsis pilulifera* and with a caption reading "seedling in Southern California," shows the newest leaf has a distinctly pinkish brown petiole.

Indeed, *Chrysalidocarpus hamannii* has a lot of pink in it. As an adult, freshly cut petioles, rachises, leaf bases, and inflorescence peduncles and rachises have a faint but distinct, pink blush. Even when these organs are dried, the faint pink blush can sometimes still be seen.

The same Palmpedia page has another photo of the same plant of *Chrysalidocarpus hamannii* in Hamann's garden and also misidentified as *Dypsis pilulifera*, but showing it many years later as a trunked juvenile with about 1.5 meters of trunk and three to four meters tall overall with the caption in part reading " . . . San Diego county, . . ." Unfortunately, this photograph and that of the trunkless seedling are undated.

Like many other large, solitary Malagasy palms and other palms in other genera, *Chrysalidocarpus hamannii* goes through an early establishment phase where the trunk or stem develops a "heel" or "saxophone-type" growth. In this type of growth, the germinated seedling grows downward, sometimes for 50 cm or more, and after attaining a certain depth, the growing tip turns abruptly upward toward the surface. While still underground, the much abbreviated stem enlarges, sometimes into a swollen, bulbous structure, which stores water, carbohydrates as starch, and provides protection for the critical apical meristem (Nascimento e Souza et al. 2017).

Palm trunks or stems of this type of early development are short, subterranean, much abbreviated, and saxophone-shaped with congested, compacted internodes. For many years, these palms lack a visible, above-ground trunk and instead have a rosette of small but increasingly longer leaves emerging directly from the ground. The heel or saxophone growth is a portion of the abbreviated stem or trunk that arises from then submerges into the soil before arising again a short distance away. Eventually an above-ground trunk appears (Haskell 2025, Hodel 1992, Tomlinson 1990).

Although its evolutionary basis is not completely understood, saxophone-type establishment growth of palm stems maintains the critical apical meristem underground and within an enlarged,

relatively swollen stem, which offers fire resistance, drought tolerance, herbivore protection, food source (carbohydrate storage), and anchorage for many years while the root system develops within a potentially harsh environment, securely setting the stage for future development of its above-ground trunk and full canopy of mature leaves and inflorescences (McPherson and Williams 1998, Nascimento e Souza et al. 2017). Gregg's palm took more than 10 years from the time he planted it as a small, containerized palm until it emerged from this establishment phase and produced visible, above-ground trunk.

Cultivation

Gregg's garden, on a hilltop about 260 m elevation with outcrops of large granite boulders in El Cajon, and 25 km east of downtown San Diego and the Pacific Ocean, is in Sunset Garden Zone 23 (Williamson 1988), one of the most favored gardening zones in the continental United States. The location is sufficiently far inland to gain some heat but still close to the ocean to benefit from its moderating influence on exceedingly cold and hot days and has excellent cold air drainage.

El Cajon has a Mediterranean climate with warm, dry, mostly sunny summers and cool, sometimes moist winters (Kottek et al. 2006). The coldest month in El Cajon is January, and average daily high and low temperatures are 20.5 C and 5.5 C, respectively. The warmest month is August, and average daily high and low temperatures are 31.5 C and 18 C, respectively. Historically, temperatures rarely exceed 40 C and even more rarely drop to 0 C. The coldest temperatures Gregg has recorded in his garden since 1993 have been in the range of 1.5 C to 4 C and then on only a few occasions; the temperature has never dropped to O C during this time. Precipitation averages about 240 mm annually, nearly all occurring from late November to late March (USC 2025).

Night and morning low clouds, commonly referred to as the "marine layer" or "May gray, June gloom," are a significant weather feature especially from May through August but can occur in any month of the year (MUCSD 2025, UT 2025). This phenomenon, while stronger closer to the coast, still helps to moderate temperatures and increase humidity. Average relative humidity ranges from about 60% in the winter to 70% in the summer.

The *Chrysalidocarpus hamannii* grew for many years in the light shade of taller trees but has now reached the tree canopy and is more exposed. It is at the base of a large, southeastern-facing, granite boulder that likely absorbs heat in the day and radiates it at night, providing some additional heating to the area. It is planted in mostly sloping, rich, well drained, loamy soil. Gregg regularly mulches around his palms with recycled palm detritus, which he produces on-site from palm material processed through a chipper/shredder. Natural leaf fall from adjacent trees adds to the mulch.

Gregg irrigates his garden up to two times per week depending on the weather. He injects a water-soluble, 20-20-20 (N-P-K) fertilizer into the irrigation water from March to November.

Chrysalidocarpus hamannii is a handsome but relatively slow-growing palm, at least in one of the most favored palm-growing locales in southern California, producing only about three leaves per year. Hamann told me that his plant began to produce visible trunk in 2003, about 10 years after planting out. In the intervening 23 years it has produced about six meters of trunk, or an average of about 25 cm of trunk per year since trunk formed. The growth rate in a tropical moist or wet locale would likely be greater.

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