Chamaedorea delicata (Arecaceae): A New Species from Cultivation

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Abstract

***Chamaedorea delicata* (Arecaceae: Arecoideae: Chamdoreeae), a new species from cultivation at the San Diego Zoo Wildlife Alliance, San Diego, California, U. S. A., is named, described, illustrated, discussed, and compared to related species. The new species is a clustered, dioecious palm, forming open clumps to 4 m tall and wide of several to numerous, very slender, erect to leaning, bamboo-like stems each topped with a few, small, long-pinnate leaves, lending a dainty or delicate nature to the plant.**

Introduction

In March, 2025 co-author Hodel visited the San Diego Zoo and Wildlife Alliance (The Zoo) to assist staff with identifying their holdings of *Chamaedorea* (Arecaceae: Arecoideae: Chamdoreeae) as part of their efforts to inventory its palms. During the course of their work in the Fern Canyon area of The Zoo, they encountered one taxon composed of five plants that Hodel was unable to place with a known species. We made several collections from three of the plants at that March visit and then additional collections of other plants at subsequent visits in June, 2025. With the material at hand, Hodel wrote up a description of the taxon and compared it to related species, culminating in the decision that the taxon in question was a species new to science. Here this new species is named, described, illustrated, and compared to related species, and we discuss its origin and history at The Zoo. The description is from fresh, undried, living material.

Taxonomy

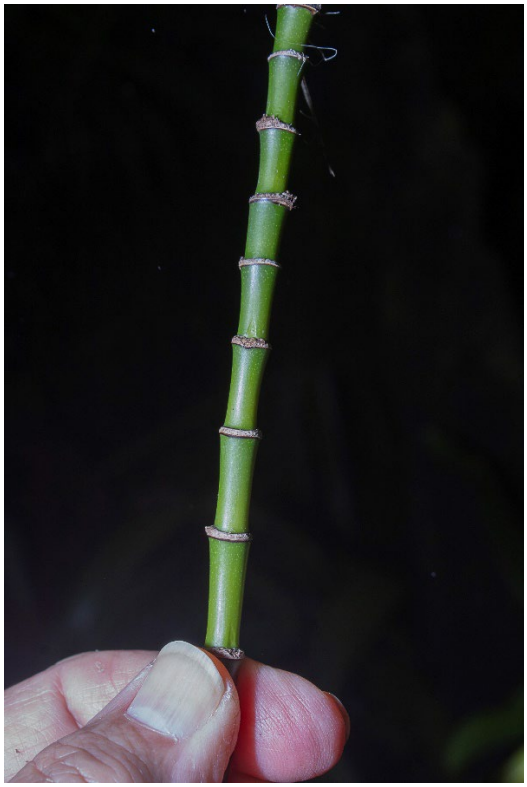
***Chamaedorea delicata* Hodel sp. nov.** TYPE: CULTIVATED. U. S. A. California. San Diego County: San Diego, San Diego Zoo Wildlife Alliance, Fern Canyon, 19 March 2025, *D. R. Hodel 4036* (SDZ accession *1002-0268.001* (provisional SDZ accession *DH585*), staminate, with Robert Dengler, Saula Ligani, Michael Letzring, and Andres Espinosa (Holotype LASCA [**Fig. 1**]; Isotype BH). **Figs. 1–16.**

1. *Chamaedorea delicata*, *Hodel et al. 4036*, Holotype (LASCA). Petals of yellow staminate flowers turn black when dried. © 2025 by M. S. Woo.

2. *Chamaedorea delicata*, habit, *Hodel et al. 4035*. © 2025 by D. R. Hodel. All photos of living plants taken in Fern Canyon, The Zoo, San Diego, California.

3. *Chamaedorea delicata*, habit, *Hodel et al. 4037*. © 2025 by D. R. Hodel.

4. *Chamaedorea delicata*, habit, *Hodel et al. 4039*. © 2025 by D. R. Hodel.



5–6. Stems of *Chamaedorea delicata* are green, ringed, and bamboo-like. **5.** Internodes on proximal parts of stem can be long. *Hodel et al. 4037*. **6.** Internodes on distal parts of stems can be short. *Hodel et al. 4039.* © 2025 by D. R. Hodel.

Diagnosis: *Chamaedorea delicata* is likely closest to *C. pochutlensis* Lieb. but this latter differs in its much larger, overall habit and larger size and greater quantity of its various organs (for example stems, leaves, petioles, rachises, pinnae and staminate and pistillate peduncles, rachises, and rachillae) and in the staminate flowers with a larger, yellow pistillode equaling the petals (vs. smaller, clear- to white-colored pistillode shorter than the petals in *C. delicata*).

Habit: cespitose (clustered) (**Figs. 2**–**4**), unarmed, dioecious, pleonanthic palm, forming open clumps of several to numerous, very slender, erect to leaning stems to 4 m tall and wide each topped with a few, small, long-pinnate leaves, lending a dainty or delicate nature to the plant.

Stems: bamboo-like, ringed (**Figs. 5–6**), erect to leaning, sometimes decumbent when old and tall or long; internodes 1–1.5 mm wide, green where exposed, yellowish where covered, proximally to 25 cm long and 1.2 cm diam. (**Figs. 5–6**), ring-like leaf scars 1–3 mm wide, raised, tan, distally to 2 cm long, ring-like leaf scars cleft-like, indented 1–2 mm, tan.

7. Leaf blades of *Chamaedorea delicata* are pinnate and typically with 15 or fewer per each side of the blade. *Hodel et al. 4039*. © 2025 by D. R. Hodel.

8–9. Leaf blades and pinnae of *Chamaedorea delicata*. **8.** *Hodel et al. 4035.* **9.** *Hodel et al. 4037*. © 2025 by D. R. Hodel.

10. Small, hard "knot" adaxially at attachment of pinnae to the rachis of *Chamaedorea delicata*. *Hodel et al. 4035*. © 2025 by D. R. Hodel.

11. Adaxially, pinnae of *Chamaedorea delicata* have a prominently elevated midrib. *Hodel et al. 4035*. © 2025 by D. R. Hodel.

12. Abaxially, the midrib of the pinnae of *Chamaedorea delicata* is prominently raised and cream-colored to light green. *Hodel et al. 4035*. © 2025 by D. R. Hodel.

Leaves: pinnate, few per stem (2–3), spreading; **base** 15–22 cm long, tubular but briefly and obliquely open apically and splitting more deeply with age, thicky-papery, longitudinally striate-nerved, greenish becoming tan, fibrous, marcescent; **petiole** (3–)6–16 cm long, 3–4.5 mm high and 3–5 mm wide at base, 3.5–4 mm diam. at apex, adaxially slightly grooved proximally to flattened distally, rounded abaxially with faint yellowish to lime-green band extending on to rachis and leaf base; **blade** 43–50 × 24–26 cm; rachis 34–38 cm long, tapering to 0.8–1 × 0.6–1 mm at apex, adaxially sharply but shallowly angled especially proximally, rounded abaxially with faint yellow- to lime-green band like petiole; **pinnae** 13–15(–18) per side (**Figs. 7–9**), alternate to opposite to subopposite, thin-papery to papery, lanceolate, straight, abruptly constricted at base and there a small, hard "knot" adaxially at attachment to rachis (**Fig. 10**), most proximal 1–6 pairs 7–15 × 0.4–1.5 cm, exiting rachis at right angle or nearly so, very slightly falcate, acuminate; mid-blade to distal pinnae largest, 15–19 × 1.5–2.3 cm, forward-pointing at 35°–45° angle, straight, slightly falcate, long-acuminate; adaxially **midrib** prominently elevated (**Fig. 11**) and 2–4 **primary veins** and one submarginal vein on either side of midrib inconspicuous, veins of lesser orders faint, abaxially midrib prominently elevated and cream-colored to light green (**Fig. 12**) and 2–4 faint primary veins and 1 submarginal vein inconspicuous, veins of lesser orders faint; end pinnae confluent to form broader pinnae, 10.5–16.5 × 2.7–4.5 cm, broadly lanceolate, short-acuminate, adaxially and abaxially 4–5 primary veins conspicuous, veins of lesser orders inconspicuous.

Inflorescences: 1–2, infrafoliar, breaking through persistent, dead, tan to brown leaf bases, 14–34 cm long; **staminate with peduncle** 7.7–19 cm long, 5–6 mm wide and 2.5–4 mm thick at base, 3.5 mm thick, 4 mm wide and 3.5 mm thick at apex, green where exposed; **bracts** 4–5, imbricate, acute and obliquely open apically, tan to brown, longitudinally striate-veined, prophyll 1–1.5 cm long, bifid apically, brown, 1st peduncular bract 2.7–5 cm long, 2nd peduncular bract 4–13 cm long, 3rd peduncular bract1–13 cm long, extending on to rachis or not, most distal peduncular bract rudimentary, small, 0.2–2 cm high, triangular, green, sometimes concealed by the adjacent proximal bract; **rachis** 1.5–6 cm long, tapering to1–2 mm diam. at apex, minutely white-spotted; **rachillae** 2–7 (**Fig. 13**), 3–11.5 cm long, 2–2.25 × 1.5–2 mm thick at base, tapering 0.8 mm diam. at apex, ascending to spreading, stiff, rigid, straight, each subtended by a low, green bracteole 0.5–3 mm high, these broadly rounded on most proximal rachilla and narrowly triangular on most distal rachilla; **pistillate with peduncle** 7.5–9 cm long, 4–5 mm wide and 2 mm thick at base including bracts, tapering to 2 mm wide and 1 mm thick at apex, green where exposed; **bracts** 4–5, imbricate, acute and obliquely open apically, tan to brown, longitudinally striate-veined, 4–5 mm wide; prophyll attached within 1 mm of base, 4–5 mm long, bifid apically, 1st peduncular bract 8–12 cm long, 2nd peduncular bract 1.5–3 cm long, 3rd peduncular bract 3–5.5 cm long, 4th peduncular bract 4–7 cm long, not extending on to rachis but concealing a small, triangular, green, rudimentary peduncular bract 0.2–5 cm high; **rachis** to 1.5 cm long; **rachillae** 2–4 (**Figs. 14**–**15**), 3.5–5.5 cm long, 1.5 mm diam. base, tapering 0.7 mm diam. at apex, stiff, rigid, straight,

13. Staminate inflorescences of *Chamaedorea delicata* are longer and typically have 2–7, ascending to spreading rachillae. *Hodel at al. 4035*. © 2025 by D. R. Hodel.

14. Pistillate inflorescences of *Chamaedorea delicata* are smaller and few-branched with stiffly parallel rachillae. *Hodel et al. 4037*. © 2025 by D. R. Hodel.

15. Pistillate inflorescences of *Chamaedorea delicata* are shorter with 2–4, stiff, ascending, parallel rachillae. Pistillate flowers just past anthesis have a green calyx and yellow petals. *Hodel et al. 4037*. © 2025 by M. McNeeley.

parallel, each subtended by a narrowly triangular, green rachis bract to 2 mm high mm high.

Flowers: staminate flowers in 2 spiraling rows 2–4 mm distant, 3–6 mm distant within a row, in bud 2.5–3 × 2 mm, green, calyx light to gray-green, 1/2 as high as corolla, latter dark green; at anthesis, 5 × 3.5 mm, yellow (**Fig. 16**), aromatic; **calyx** 1 × 2 mm, green, 3-lobed, sepals imbricate and/or connate in proximal 1/2–2/3, broadly rounded apically, margins light colored; **petals** 4 × 2.5–3 mm, broadly ovate, valvate, spreading slightly apically, yellow, tips acute and erect; stamens 2 mm high, tightly arranged around and shorter than pistillode, filaments 1.5 mm high, anthers 1 × 1 mm; **pistillode** 3 × 0.8 mm, columnar, tip truncate, clear- to white-colored, shorter than petals; **pistillate flowers** 2–5 mm distant proximally, 2 mm distant distally, just prior to anthesis 2 × 2 mm, greenish; **calyx** 0.7 ×2 mm,1/3 as high as corolla, cupular, dark green, sepals imbricate in basal 3/5, broadly rounded apically and free; **petals** 2 × 2 mm, broadly ovate, imbricate in basal 3/5, broadly rounded apically and briefly free with an acute, erect tip, light green; **gynoecium** 1.8 × 2 mm, black; pistillate flowers just past anthesis larger, 3 × 3 mm (**Fig. 15**); **calyx** 1 × 2.75 mm, green; **petals** 3 × 3 mm yellow; **gynoecium** 3 × 3 mm, depressed ovoid, green, stigma lobes short, barely discernable, exceeding petals.

16. Staminate flowers of *Chamaedorea delicata* have a white to clear-colored pistillode shorter than the petals. *Hodel et al. 4035*. © 2025 by D. R. Hodel.

Fruits: unknown.

Additional Specimens Examined: CULTIVATED. U. S. A. California. San Diego County: San Diego, San Diego Zoo Wildlife Alliance, Fern Canyon, 19 March 2025, *D. R. Hodel 4035* (*SDZ 1999-0641.002*), staminate, with Robert Dengler, Saula Ligani, and Michael Letzring (LASCA); *D. R. Hodel 4037* (no SDZ accession number, provisional number *DH 658A*), pistillate, with Robert Dengler, Saula Ligani, and Michael Letzring (LASCA); 3 June 2025, *D. R. Hodel 4039* (no SDZ accession number, provisional number *DH 657*), pistillate, with Mychael McNeeley, Robert Dengler, Saula Ligani, and Robert Burtscher (LASCA); *D. R. Hodel 4040* (*SDZ 1999-0641.002*), staminate, with Mychael McNeeley, Robert Dengler, Saula Ligani, and Robert Burtscher (LASCA).

Etymology: We had attached the provisional working name "Dainty" to this species because of its very slender, erect to leaning, bamboo-like stems each topped with a few, small, long-pinnate leaves, lending a dainty or delicate nature to the plant. The specific epithet is derived from the Latin word *delicatus*, meaning delicate or dainty, which aptly describes this new species.

Discussion

Chamaedorea includes over 100 species of dwarf to moderate, solitary of clustered, pinnate- or simple (bifid apically and pinnately ribbed)-leaved, mostly understory palms with bamboo-like stems from Mexico to northern South America. Denizens of moist to wet, undisturbed forests, the genus is especially rich and diverse from 500 to 1000 m elevation in southern Mexico and adjacent Guatemala and again in Costa Rica and adjacent Panama. Hodel (1992a) provided a comprehensive, detailed, and copiously illustrated monograph of the genus and he and others added additional species and information in subsequent publications (Bernal et al. 2004; Cascante-Marin and Muller 2020; Grayum 1998; Hodel 1992a, 1995, 1996, 1997, 2013, 2022; Hodel et al. 1995, 1997; and Pérez-Farrera et al. 2021).

By the nature of its solitary, staminate flowers with valvate petals free and spreading apically and solitary staminate inflorescences at a node, *Chamaedorea delicata* falls within the informal grouping of subgenus *Chamaedoropsis* (Hodel 1992a). Several recent molecular-based phylogenies (Cano 2018, Cuenca and Asmussen-Lange 2007, Thomas et al. 2006) do not fully support the morphological basis for *Chamaedoropsis* and a few of the other informal subgenera, especially the closely related subgenus *Chamaedorea*, that I had outlined (Hodel 1992a); however, the character traits I used to define these subgenera are, in most cases, still useful in helping to identify species.

Within *Chamaedoropsis*, *Chamaedorea delicata* falls within an informal sub-group I termed "Cespitose Species with Pinnate Leaves," and includes species like *C. costaricana*, *C. hooperiana*,

C. pochutlensis, *C. schippii*, and *C. seifrizii*, among others (Hodel 1991). Of these species, *C. delicata* is closest to *C. costaricana* and *C. pochutlensis* but is immediately distinguishable from the former by the lack of a ligule at the apex of the leaf base on either side of the petiole.

Chamaedorea pochutlensis, to which *C. delicata* is likely closest, differs in its much larger, overall habit and larger size and greater quantity of its various organs (for example stems, leaves, petioles, rachises, pinnae and staminate and pistillate peduncles, rachises, and rachillae) and in the staminate flowers with a larger, yellow pistillode equaling the petals (vs. smaller, clear- to white-colored pistillode shorter than the petals in *C. delicata*). We feel that these character traits are sufficiently distinct to recognize *C. delicata* as a new species rather than including it in *C. pochutlensis*, in the latter case even as a subspecific taxon.

While world-famous for its conservation efforts and animal-holdings, The Zoo also has a wealth of documented plant collections, so rich and extensive that some have noted that its plant collections easily rival and might even surpass its animal collections in value.

The palms are a group of plants in which The Zoo is extremely rich and diverse, and *Chamaedorea* is no exception; indeed, *Chamaedorea* might be the largest genus of palms in terms of species in The Zoo's collections. Fern Canyon, a moist, shady, gully leading downward from near the main entrance of The Zoo, is especially rich in *Chamaedorea*, ferns, and similar shade-loving plants. The five plants of *C. delicata* are in Fern Canyon and **Table 1** summarizes their status.

Table 1. Summary of the Five Plants of *Chamaedorea delicata* in Fern Canyon, The Zoo, San Diego, California, U. S. A., 3 June 2025.

Name as Received	**Source**	**The Zoo Accession No.**	**Hodel Collection No.**
Chamaedorea sp.	Unknown history - Pistillate	n/a	*4039*
Chamaedorea sp.	Rancho Soledad Nursery Rancho Santa Fe, CA- listed as *Chamaedorea* sp. gift 11.04.99 #7 pot - Staminate	*1999-0641.002*	*4035*
Chamaedorea sp.	Rancho Soledad Nursery Rancho Santa Fe, CA- listed as *Chamaedorea* sp. gift 11.04.99 #7 pot - Staminate	*1999-0641.001*	*4040*
Chamaedorea sp.	Unknown history - Staminate	*1002-0268.001*	*4036,* TYPE
Chamaedorea costaricana	Unknown history - Pistillate	n/a	*4037*

Only two of the five plants of *Chamaedorea delicata* have a known source and these are the two 1999 accessions from Rancho Soledad Nursery in Rancho Santa Fe, California north of San Diego. The late owner Jerry Hunter was an avid collector of rare and exotic tropical and subtropical plants, especially palms, cycads, and aroids and more recently dryland plants and succulents. Thus, it is unsurprising that he had an unusual, unnamed *Chamaedorea* in his nursery in the late 1990s.

The sources of the other three plants of *Chamaedorea delicata*, including the type (*Hodel 4036*), have been lost. They could easily have come from Rancho Soledad Nursery, also, and they appear to be of the same or similar age/size class as the two plants of known origin. One was obtained as *C. costaricana* (*Hodel 4037*), a name commonly misapplied to nearly any cespitose *Chamaedorea* with pinnate leaves in the latter part of the 20th century.

Cultivation

All plants of *Chamaedorea delicata* are in moderate to dense shade on mostly sloping, moist, clay-loam soil with abundant, natural mulch derived from fallen leaves from Fern Canyon's canopy trees.

San Diego has a Mediterranean climate with warm, dry, mostly sunny summers and cool, mostly moist winters (Kottek et al. 2006). Average monthly temperatures are 14.1 C in January, the coolest month, and 22 C in August, the warmest month. Average high/ low daily temperatures are 18 C/10 C in January and 26 C/19.5 in August (CR 2025, WRCC 2025, WU 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 helps to moderate temperatures and increase humidity. Temperatures rarely exceed 32 C and even more rarely drop to O C.

Annual average relative humidity ranges throughout the day from 76 percent in the early morning to 58 percent at 1:00 pm (WU 2025).

Precipitation averages about 30 cm annually, most from November through March (WRCC 2025). The precipitation deficit is made up by irrigation through overhead sprinklers Plants are not fertilized.

Other than precipitation and to some extent relative humidity, these weather conditions are somewhat similar to those found in moist, tropical, mountain forests where Chamaedoreas naturally occur. The Zoo's location and topography, on an elevated plateau dissected by ravines like that of Fern Canyon, further enhance already nearly ideal conditions in which to cultivate

Chamaedoreas. Located in a protected, moist ravine or gully with a dense tree canopy for shade and wind protection and an artificial stream to help increase humidity, Chamaedoreas, ferns, and related plants have thrived in Fern Canyon.

Most plants of *Chamaedorea delicata* in Fern Canyon show some brown tipping of leaves, which is often associated with too much or too little root zone moisture, water high in salt and/or other dissolved minerals, or excessively low humidity. The first two factors, soil moisture and poor quality of water can be managed or mitigated to some extent through horticultural practices, such as an infrequent but deep irrigation to leach accumulated salts from the root zone. While low humidity can also be managed horticulturally, through shade and irrigation, it is more difficult to do so by adding water to the environment without excessively moistening the soil, adding salts to the root zone, and/or leaving unsightly deposits of minerals on plant leaves.

If excessively low humidity is the culprit in the brown tipping of leaves of *Chamaedorea delicata*, it would indicate that this species is likely a natural denizen of extremely wet and/or humid tropical rain and cloud forests, mostly at moderate to high elevations. Chamaedoreas that occur naturally in these conditions with little or no daily and seasonal variation in environmental conditions have a long history of being difficult to cultivate.

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