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Two New Species of *Chamaedorea* (Arecaceae) from Panama

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ABSTRACT

Chamaedorea deneversiana and *C. verecunda* are described as new, the former from Veraguas Province and the Comarca de San Blas in central Panama, the latter from the La Fortuna region of Chiriqui Province in western Panama. Both are simple-leaved species of very wet, mid-elevation forests. Staminate and pistillate specimens of each species are illustrated with photographs.

This paper describes two new simple-leaved species of the genus *Chamaedorea* (Arecaceae) from wet forests of central and western Panama. It is among the last papers in a series (Hodel 1990b, 1990c, 1990d, 1991a; Hodel and Castillo Mont 1990, 1991; Hodel and Uhl 1990a, 1990b, 1990c) describing new taxa of *Chamaedorea* in preparation for the imminent publication of Hodel's (1991b) comprehensive account of the genus.

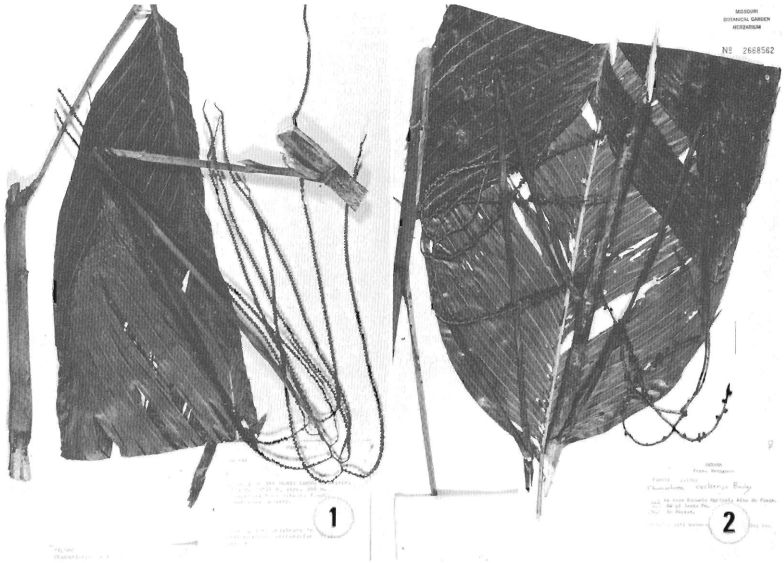
The two species described below are not closely related, probably belonging in separate subgenera according to the classification of Burret (1933). Both species are of very restricted distribution and unknown in cultivation, and must be regarded as endangered.

Chamaedorea deneversiana Grayum & Hodel, sp. nov.

Caulis 1.5-3 m altus 1.3-1.6 cm diametro; petiolus ultra vaginam 14.4-45.9 cm longus; lamina simplex oblonga apice bifida secus costam 34.9-61.2 cm longa ad marginem lateralem versus apicem grosse serrata; lamina nervis utroque cos-

tae latere 20-24; inflorescentia mascula pedunculo ca. 40.9 cm longo rhachidi ca. 4.8 cm longa rachillis 10, pendentibus 25.4-33.1 cm longis; flores masculi 1.1-1.3 mm longi 1.8-1.9 mm lati corolla depresso-obolata petalis enervibus vel obscure nervatis antheris ca. 0.6 mm longis pistillodio incudiformi ca. 0.4 mm longo; inflorescentia feminea pedunculo 18.3-59.8 cm longo rhachidi ca. 2.3 cm longa rachillis (3?)4-6, 10.2-30.2 cm longis; flores feminei 2.2-2.5 mm longi 2.5-2.8 mm lati lobis corollae extus obscure nervatis intus prominenter ca. 15-nervatis pistillo 1.5-1.9 mm longo; fructus late ellipsoideis in sicco 6.8-7.5 mm longis 5.6-5.8 mm latis. TYPUS: Panama. San Blas: Cerro Brewster, 9°18'N, 79°16'W, 850 m, *de Nevers et al.* 5553A (holotype, MO; isotype, CAS). Figures 1,2.

Stem prostrate to erect, probably solitary (but no data), 1.5-3 m tall, the internodes 5.5-12.3 cm long, 1.3-1.6 cm wide. Leaves 4 (*Mori & Kallunki* 5352). Sheath ca. 19-26 cm long; rest of petiole 14.4-45.9 cm long. Lamina simple, oblong, bifid apically, 34.9-61.2 cm along midrib, 15.6-17.1 cm along upper margin, 12.4-25.0 cm between apices of lobes; lateral margins coarsely serrate toward apex; major veins 20-24 per side, knife-edge-raised above, prominent below, the larger ones somewhat erose-margined; midrib broad and yellowish below, overhanging and scurfy-roughened laterally. Inflorescences infrafoliar, borne to at least 1 m below crown (*Mori & Kallunki* 3208).



1. *Chamaedorea deneversiana* (de Nevers et al. 5553A); staminate specimen. 2. *Chamaedorea deneversiana* (Mori & Kallunki 3208); pistillate specimen.

Staminate inflorescence (just one seen) branched, with drooping rachillae; peduncle 40.9 cm long, bearing 6 bracts; rachis 4.8 cm long, slightly zigzag; rachillae 10, 25.4–33.1 cm long. Staminate flowers 1.1–1.3 × 1.8–1.9 mm at anthesis; calyx 0.3–0.4 mm high, lobed ca. halfway to base, the lobes hyaline, nerveless; corolla depressed-oblate, the petals valvate in bud, nerveless or obscurely nerved, apparently free at anthesis; stamens 6, the anthers ca. 0.6 mm long, somewhat reniform; pistillode stout, ca. 0.4 mm long, anvil-shaped. Pistillate inflorescence branched, the axes becoming yellow to orange in fruit; peduncle 18.3–59.8 cm long, bearing 5–6 bracts; rachis ca. 2.3 cm long, slightly zigzag; rachillae (3?) 4–6, 10.2–30.2 cm long. Pistillate flowers 2.2–2.5 mm long at anthesis; calyx 0.5–0.6 × 2.5–2.8 mm, moderately 3-lobed, the lobes 5-nerved;

corolla suburceolate, constricted toward the base where the lobes are fused in a tube ca. 0.2–0.3 mm high, the lobes obscurely nerved externally, prominently ca. 15-nerved within; staminodes not observed; pistil 1.5–1.9 mm long, the style trifid. Fruits broadly ellipsoidal, 6.8–7.5 × 5.6–5.8 mm when dry, described as “green” (Mori & Kallunki 5352) or “yellow” (de Nevers et al. 5553B) hence presumably immature.

Additional Specimens Examined. PANAMA. SAN BLAS: Cerro Brewster, 9°18'N, 79°16'W, 850 m, de Nevers et al. 5435 (MO), 5553B (CAS, MO). VERAGUAS: vicinity of Escuela Agrícola Alto de Piedra, Mori & Kallunki 3208; NW of Santa Fe, Mori & Kallunki 5352 (MO).

Distribution and Phenology. *Chamaedorea deneversiana* is known from just five collections, three from the Cerro Brew-

ster region of the Comarca de San Blas, and two others from the vicinity of Cerro Tute, Veraguas Province. These are both very wet sites near the Continental Divide in central Panama. Only one of the specimens (*de Nevers et al.* 5553A) is staminate. The species was first collected in 1974 by S. Mori and J. Kallunki. Habitat data for *C. deneversiana* are practically nonexistent; *Mori & Kallunki* 5352 grew on a "rocky streambank." Fertile specimens have been collected from November through April.

Chamaedorea deneversiana possibly belongs in subgenus *Chamaedorea*, on the basis of its relatively small staminate flowers on long, slender, drooping rachillae (Fig. 1). Typically, in this subgenus, the staminate petals are apically connate and prominently nerved; the single staminate specimen of *C. deneversiana* may have somewhat immature flowers.

Specimens of *Chamaedorea deneversiana* have been misidentified as "*C. coclensis* L. Bailey" (= *C. amabilis* H. A. Wendl. ex Dammer; Hodel 1990a), an ostensibly related species occurring in similar habitats from Costa Rica south to the Chocó. Indeed, the two species bear a striking resemblance in their simple, relatively shallowly bifid leaves with a peculiar, oblong shape, prominently serrate margins and numerous lateral veins. However, *Chamaedorea deneversiana* is a taller palm with larger leaves and more numerous and considerably longer staminate rachillae, which are drooping rather than erect as in *C. amabilis*. Furthermore, the pistillate inflorescences of *C. deneversiana* are branched, with 4–6 rachillae (Fig. 2), whereas those of *C. amabilis* are simple, or occasionally bifid.

The new species is dedicated to Gregory C. de Nevers, collector of three of the five known specimens, whose pioneering botanical explorations in the Comarca de San Blas and special interest in palms have forged a sterling contribution to Panamanian floristics.

***Chamaedorea verecunda* Grayum & Hodel, sp. nov.**

Caulis gracilis 50–75 cm altus 3.5–5.0 mm diametro; petiolus ultra vaginam 1.7–4.4 cm longus; lamina simplex obovata profunde bifida secus costam 2.75–5.40 cm longa ad marginem lateralem versus apicem crenata vel serrata; lamina nervis utroque costae latere 6–9; inflorescentia mascula spicata pedunculo 13.3–18.9 cm longo rhachidi 6.5–9.7 cm longa maturatione florum basipeta; flores masculi lutei cernui 3.6–5.1 mm longi 1.7–2.0 mm lati corolla anguste campanulata lobis corollae sub anthesi apice liberis fere enervibus ovatis 2.6–3.3 mm longis 1.8–1.9 mm latis apice rotundatis vel subacutis antheris 1.2–1.5 mm longis pistillodio 2.3–2.8 mm longo; inflorescentia feminea spicata pedunculo 14.3–22.1 cm longo rhachidi 4.2–5.4 cm longa maturatione florum basipeta; flores feminei lutei cernui 2.1–2.3 mm longi 1.6–1.7 mm lati corolla late campanulata vel suburceolata lobis corollae obscure 5–7-nervatis late ovatis pistillo 1.8–2.2 mm longo; fructus in sicco usque ad minimum 1 cm longis. TYPUS: Panama. Chiriquí: N. of Hornito, 4,200 ft., *Hammel* 6221 (holotype, MO-3622575). Figures 3,4.

Small, slender palm ca. 50–75 cm tall, lacking stilt-roots (*Kirkbride & Duke* 942), the "trunk often decumbent" (*Hammel* 2254), probably solitary (but no data). Internodes surpassed by sheaths, 1.7–3.8 cm long, 3.5–5.0 mm wide. Leaves ca. 8–11, "grey-green" (*Hammel* 6221). Sheath 2.2–5.3 cm long, rather loose, and oblique at orifice, the veins prominent and obscurely nodulose; rest of petiole 1.7–4.4 cm long. Lamina simple, obovate, deeply bifid, 2.75–5.40 cm along midrib, 6.3–9.7 cm along upper margin, 7.7–10.1 cm between apices of lobes; lateral margins crenate to serrate, especially toward apex; major veins 6–9 per side, knife-edge-raised on both