

Additional New Species of *Chamaedorea*

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Recent work in Guatemala for a project on *Chamaedorea* that the International Palm Society will publish in 1991 has yielded two undescribed species, one from the Atlantic slope and the other from the Pacific slope. This latter species also occurs in Chiapas, Mexico.

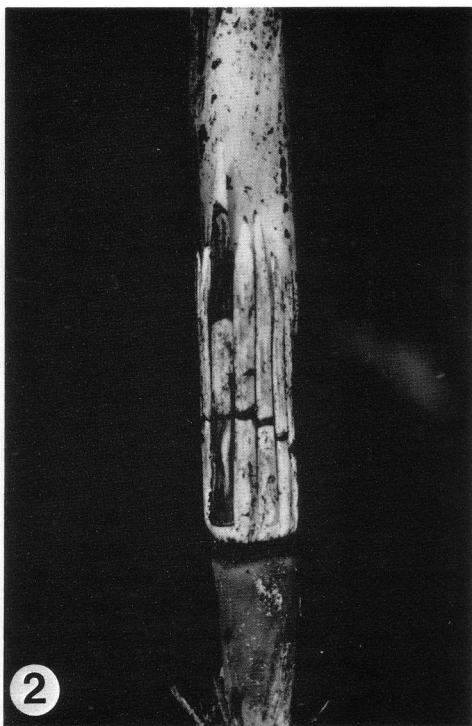
Chamaedorea nationsiana D. R. Hodel & J. J. Castillo Mont **sp. nov.** (Figs. 1-4).

Subgeneris *Stephanostachydis* Klotzsch, floribus masculis contiguus. *C. arenbergianae* H. A. Wendl. affinis sed inflorescentiis masculis spicatis aliquot per nodum differt. Typus: Guatemala, D. R. & J. J. Castillo Mont 1021A (Holotypus BH; Isotypus AGUAT).

Stem solitary, erect, to 2.5 m tall, 2-3 cm diam. (Fig. 1), green, smooth, ringed, internodes to 10 cm long. Leaves 5-6, erect-spreading, pinnate; sheath to 30 cm long, obliquely open apically and there rough- and brown-margined, longitudinally striated, green with a raised yellowish central costa; petiole to 75 cm long, green and flat or slightly channeled adaxially, green laterally, rounded and pale abaxially; rachis to 1 m long or perhaps more, green and angled adaxially, rounded abaxially with a distinct yellow band extending onto the sheath; pinnae to 11 on each side of the rachis, opposite to subopposite, lanceolate, middle ones the largest, these to 53 × 9 cm, slightly sigmoid, falcately long-acuminate, 8-9 prominent primary nerves adaxially, middle one often most

prominent, these pale and keeled abaxially, 1 secondary between each pair of primaries, tertiaries numerous, faint, lowest pinnae to 40 × 6 cm, apical pair to 35 × 8.5 cm, 10-nerved.

Inflorescences inter- or infrafoliar in flower, infrafoliar in fruit, spicate. Staminate inflorescences several to a node (Fig. 2), usually 8, each with a separate prophyll and peduncular bracts but borne on a common hypodium, center inflorescence developing first followed sequentially by the others on either side; peduncle ascending, to 25 cm long, 5 mm wide at the base, 2-3 mm diam. at apex; bracts 4-5, fibrous, greenish in flower, tips brown and tattered, acute-acuminate, longitudinally striate-nerved, shredding with age, prophyll to 5 cm long, 2nd bract to 9 cm long, 3rd to 15 cm long, 4th to 25 cm long, 5th to 25 cm long and greatly exceeding peduncle; rachis or flower-bearing portion to 15 cm long, pendulous, densely flowered. Pistillate inflorescences solitary at a node (Figs. 3,4), ascending in flower, nodding in fruit; peduncle to 30 cm long, 1 cm wide at base and there ± flattened, 2-5 mm diam. at the apex, greenish or pale in flower, bright orange and swollen in fruit; bracts 5, fibrous, brownish in flower becoming tattered in fruit and often fallen away, longitudinally striate-nerved, prophyll to 3 cm long and bifid, acute, 2nd bract to 6 cm long, 3rd to 10 cm long, 2nd-3rd bracts acutely bifid, 4th to 18 cm long, 5th to 23 cm long and exceeding peduncle, 4th-5th bracts acuminate and obliquely long-open; rachis or flower-bearing portion to



1. Mature plant of *Chamaedorea nationsiana*, D. R. Hodel & J. J. Castillo Mont 869, at type locality, Izabal, Guatemala. 2. Immature staminate inflorescences of *Chamaedorea nationsiana*, D. R. Hodel & J. J. Castillo Mont 871, showing the multiple arrangement at a node.

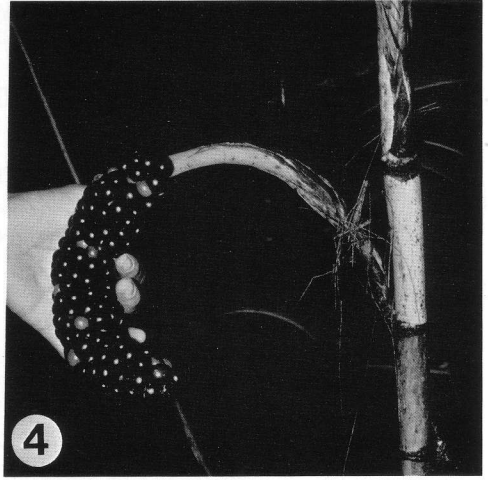
15 cm long in flower and \pm straight, to 20 cm long in fruit and \pm straight to strongly curved.

Staminate flowers densely placed in spiralling rows, contiguous in bud, \pm globose but angled by mutual pressure, $2 \times 1-1.5$ mm; calyx well developed, prominent, membranous, cupular, 1 mm high, sepals connate, scarcely 3-lobed; corolla 1 mm high, petals valvate, triangular, 1.5×1.5 mm, acute and spreading apically; stamens included, 0.8 mm high, \pm sessile, tightly placed around but not exceeding pistillode, anthers oblong, 0.8 mm long, bilobed; pistillode columnar, 1 mm high, flared basally and apically. Pistillate flowers in 5 dense spiral rows, contiguous in bud, \pm superficial, leaving elliptic scars $2 \times 0.75-1$ mm, rhombic-shaped from mutual pressure in bud and $3-3.5$ mm long, $\times 2.5-$

3 mm wide, $1.5-1.75$ mm high at anthesis and depressed-globose; calyx well developed and prominent, \pm membranous, scarcely 3-lobed, sepals connate in a thin sheathing cupule $1-1.5$ mm high; petals imbricate in basal three-fourths, broadly triangular, 1.5×2.5 mm, inflexed and rounded apically; pistil 2 mm high, \pm columnar but swollen and to 1.5 mm wide basally, 0.5 mm diam. apically, terminal cap broadly flared, styles lacking, stigma lobes recurved, bifid. Fruits black, densely packed and angled from mutual pressure, $1-1.5$ cm diam.; seeds angled, brown, $6-9$ mm diam.

Distribution: GUATEMALA. Izabal: wet forest on the Atlantic slope, to 900 m elevation.

Specimens examined: GUATEMALA. Izabal: Cerro San Gil, D. R. Hodel & J.



3,4. Inflorescences of *Chamaedorea nationsiana* showing densely packed fruits.

J. Castillo Mont 869, 871, 873, 1017, 1021B (BH; AGUAT), 1021A (Holotype BH; Isotype AGUAT).

The specific epithet honors biologist and conservationist James D. Nations of Ciudad Vieja near Antigua, Guatemala, who has contributed greatly to conservation and rural development efforts in that country.

Chamaedorea nationsiana is closest to *C. arenbergiana* with which it has been confused and would key out next to this species in an earlier paper (Hodel 1990). However, the solitary, branched staminate inflorescences with up to ten pendulous rachillae of *C. arenbergiana* distinguish it from *C. nationsiana*. Fisher and Moore (1977), reporting on multiple inflorescences in palms, stated that *C. arenbergiana* had multiple staminate inflorescences. However, this is in error; Wendland's type specimen of *C. arenbergiana* at GOET and his original description clearly show this species to have solitary, branched staminate inflorescences.

Although all the known specimens of *C. nationsiana* are from one locality in Guatemala, this highly localized distribution may be more apparent than real. Nearly all collections labeled as *C. arenbergiana*

from the Atlantic slope of Guatemala and adjacent Honduras are in fruit. Some of these may actually be *C. nationsiana* since the two species are difficult to distinguish when only fruiting material is at hand.

We distributed seeds of *C. nationsiana* in December, 1989 as *C. arenbergiana* under the numbers *D. R. Hodel & J. J. Castillo* Mont 869 and 873.

Chamaedorea fractiflexa D. R. Hodel & J. J. Castillo Mont **sp. nov.** (Figs. 5-7).



5. Fruiting plant of *Chamaedorea fractiflexa* in Quetzaltenango, Guatemala displaying procumbent stem.



6. Staminate plant of *Chamaedorea fractiflexa* from which we collected the type specimen, D. R. Hodel & J. J. Castillo Mont 912A. 7. Fruiting plant of *Chamaedorea fractiflexa*, D. R. Hodel & J. J. Castillo Mont 912B showing filiform peduncles.

Subgeneris *Chamaedorpsi* Oerst. inflorescentiis masculis solitariis, floribus masculis solitariis petalis patentibus apicaliter. *C. digitatae* Standl. & Steyerm. affinis sed floribus remotis, inflorescentiis masculis rhachidibus valde fractiflexis, peduculis femineis filiformibus pendulis, rachillis fructiferis pendulis differt. Typus: Guatemala, D. R. Hodel & J. J. Castillo Mont 912A (Holotypus BH; Isotypus AGUAT).

Stem solitary, procumbent (Fig. 5) to erect, to 2 m tall, 5–8 mm diam., smooth, green, ringed, internodes 3–7 cm long, often covered with persistent leaf sheaths. Leaves 3–8, spreading, pinnate; sheath to 12 cm long, tubular, tightly clasping, obliquely open apically, green, longitudinally striate-nerved; petiole to 5 cm long,

flat and green adaxially, rounded and pale abaxially; rachis to 20 cm long, angled and green adaxially, rounded abaxially with a pale band extending onto sheath; pinnae 5–8 on each side of rachis, regularly placed, opposite, lanceolate to broadly lanceolate, to 13 × 3.5 cm, sigmoid, long-acuminate apically, contracted basally, a prominent midrib and 2 primary nerves on each side of this, a secondary between each pair of primaries, tertiaries numerous, faint, end pinnae sometimes broader, to 6 cm wide, 4–5-nerved.

Inflorescences interfoliar, slender, few-branched; peduncles to 30 cm long, very slender, 2 mm wide at base and ± flattened, 0.5–1.5 mm diam. at apex and there filiform, green in flower, pendulous and orange apically in fruit; bracts 5–6,

± loosely sheathing, brown in flower and fruit, acute to acuminate, papery-thin, finely longitudinally striate-nerved, prophyll 2 cm long, 2nd bract 4.5 cm long, 3rd and 4th 9 cm long, 5th 7 cm long, often a rudimentary 6th concealed by 5th. Staminate inflorescence with rachis to 3 cm long (Fig. 6), strongly flexuous, green; rachillae 5, these to 7 cm long, each attached at an "elbow" of rachis, green and slightly drooping in flower. Pistillate inflorescence with rachis to 1 cm long, green in flower, orange in fruit; rachillae 3, these to 7 cm long, green in flower, downward-pointing and orange in fruit (Fig. 7).

Staminate flowers ± densely arranged, 1–2 mm apart, oblong in bud, 2–2.5 × 1–1.5 mm; calyx cupular, to 0.75 × 1.5–2 mm, 3-lobed, lobes broadly rounded, 0.5 mm wide, sepals imbricate and/or slightly connate basally; petals valvate, lightly nerved on inside; stamens 1.5 mm long, filaments 0.5–0.75 mm long, anthers oblong, 1 mm long, bilobed; pistillode columnar, 1.5 mm high, finely longitudinally striated. Pistillate flowers 3–4 mm apart, ± globose, 1 × 1.5–1.75 mm; calyx coroniform, 0.75 × 2 mm, deeply 3-lobed, lobes acute, obscurely nerved, sepals connate basally; petals lightly imbricate basally, free apically, acute, obscurely nerved, 1.5 × 1.5–2 mm; pistil ovoid, 1.5 × 1 mm. Fruits black, globose, 8 × 7 mm.

Distribution: GUATEMALA. Quetzaltenango. MEXICO. Chiapas: Dense, wet forest on the Pacific slope, 2,000–2,900 m elevation.

Specimens Examined: GUATEMALA. Quetzaltenango: southwestern slope of Volcan Zunil, D. R. Hodel & J. J. Castillo Mont 905, 905B, 912B, 986 (BH, AGUAT), 912A (Holotype BH; Isotype AGUAT). MEXICO. Chiapas: Motozintla de Mendoza, D. E. Breedlove 41648 (CAS).

The epithet is from the Latin *fractiflexus* meaning zigzag, in reference to the rachis of the staminate inflorescence. *Chamaedorea fractiflexa* is rare and known only from five collections in Guatemala and one in Mexico. It is closest to *C. digitata*, but the straight staminate rachis, thickened and ascending pistillate peduncle, more densely flowered rachillae, and ascending or spreading fruit-bearing rachillae distinguish this latter species.

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