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# Two New Species of Chamaedorea from Mexico

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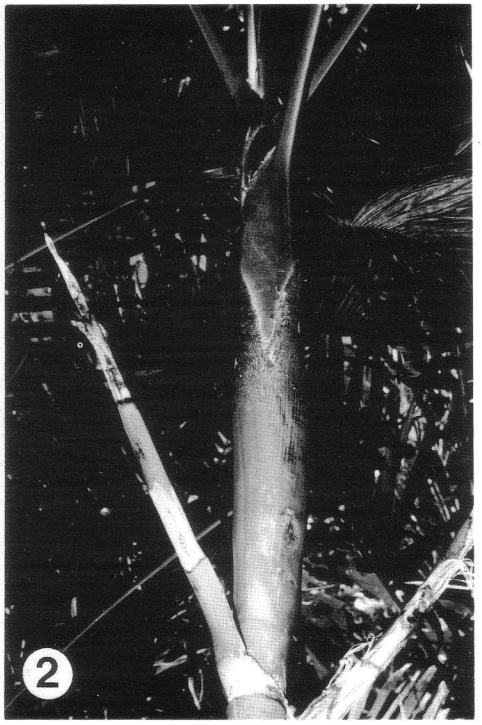
Recent work in support of a project on *Chamaedorea* that will be published by the International Palm Society in 1990 has yielded two new species. Native to Oaxaca, México, they are well established in cultivation hence names are proposed here.

**Chamaedorea vistae** D. R. Hodel & N. W. Uhl, sp. nov. (Figs. 1–3).

Insignis floribus femineis aurantiacis, inflorescentiis pedunculatis longis, foliis pinnatis longis, habitu solitario, distincta; *C. carchensi* Standl. & Steyerm. affinis sed pinnis ascendentibus numerosioribus (paribus 36 versus 20) nervis 5 prominentibus primariis, inflorescentiae masculinis rachillis numerosioribus (80–100 versus 40), fructibus oblongis aurantiacis maturitate nigris differt. Typus: México, *H. E. Moore, Jr. & G. S. Bunting 8913* (holotypus BH; isotypus MEXU).

Stem solitary, erect, stout, to 5 m tall, 5–10 cm diam., green, ringed, nodes white and prominent, to 2.5 cm wide, internodes to 20 cm long, prop roots evident (at least in some cultivated material) to 60 cm up the stem. Leaves 4–6, erect-spreading, pinnate (Fig. 1); sheath 40–80 cm long, green, somewhat swollen, tubular (Fig. 2), tightly clasping, obliquely open at the apex, longitudinally striate-nerved; petiole to 30 cm long, green and flattened or grooved adaxially especially toward the base, green and rounded abaxially with a pale yellow or yellow-green band extending onto the rachis; rachis 1–1.5 m long, green and angled adaxially, pale and rounded abaxially; blade with the pinnae ascending slightly but conspicuously off the rachis to appear wide-angled, v-shaped in cross-section; pinnae to 36 on each side of the rachis, regularly arranged, linear-lanceolate, 30–65 × 3.5–4 cm, dull dark green, ±straight, falcate, acuminate, a prominent midrib and 2 secondary nerves on each side of this somewhat recessed (only midrib prominent adaxially in dried material), all 5 nerves more prominent abaxially, tertiary nerves numerous and faint.

Inflorescences emerging from below the leaves, erect but nodding when laden with fruits; peduncles to 75 cm long, stoutish, 2.5–3 cm wide at the base and there flattened, 1–1.5 cm diam. at the apex and there ±rounded, erect and greenish in flower, orange apically and nodding in mature fruit; bracts 5, these tubular-sheathing, fibrous, brownish at anthesis, often fallen in mature fruit, acute-acuminate, bifid, longitudinally striate-nerved, prophyll to 12 cm long, 2nd bract to 30 cm long, 3rd to 35 cm long, 4th to 6 cm long, this exceeding the peduncle and concealing smaller 5th bract that is to 12 cm long. Staminate inflorescences large (Fig. 3) with a rachis to 60 cm long, erect, straight, green, longitudinally ridged; rachillae to 100, basal ones the largest, to 30 cm long, mostly unbranched but sometimes furcate, becoming progressively shorter toward the apex of the rachis, drooping, green. Pistillate inflorescences with a rachis to 40 cm long, greenish and erect at anthesis, orange and downward pointing in mature fruit, basal branches ramified 1–2 times; rachillae to 50, these to 30 cm long, erect or ascending and dark


1. *Chamaedorea vistae* in fruit at Wahiawa Botanic Gardens, Honolulu, Hawaii. Note the pinnae ascending off the rachis, the long-pedunculate infrutescence, and conspicuously ringed stem. 2. Prominent, tubular leaf sheaths of *Chamaedorea vistae* and newly emerging inflorescences, Lyon Arboretum, Honolulu, Hawaii.

green at anthesis, orange and downward pointing in mature fruit.

Staminate flowers ± densely arranged but not contiguous; sepals 0.75 × 1.25 mm, slightly connate at the base and forming a shallow cupule with 3 rounded lobes, margins brown; petals 3.0 × 2.5 mm, erect, valvate, moderately thick, free and spreading apically at anthesis; stamens with short, to 0.3 mm, triangular filaments adnate basally to the petals, anthers 1.5 × 1 mm, ±basifixed, divergent at the base, latrorse; pistillode slender, to 2.0 mm long, slightly longer than the stamens, wider at the middle, tip small, ±3-lobed; stamens ca. ⅔ the height of the pistillode, both shorter than the petals. Pistillate flowers 1.5 mm apart in 4 irregular rows, ±globose, 2.5 × 2.5 mm; calyx ringlike, low, orange-yellow, sepals briefly connate in basal ¼–½, lobes 0.5 × 1.75 mm, rounded, margins brown; petals orange-yellow with whitish margins, strongly imbricate, ovate, 2.0 × 2.0 mm; staminodes lacking or if present, 6, minute, dentiform, white, adnate to petals; pistil greenish, rounded, 2.0 × 1.5 mm, stigmas erect, reflexed, yellowish, just protruding from open petal tips. Fruits golden-orange ripening black, oblong, 10–12 × 7–9 mm diam.

*Distribution:* MÉXICO. Oaxaca: dense, wet montane forest on the Atlantic slope, 1300 m elev., probably endemic.

*Specimens Examined:* MÉXICO. Oaxaca: Vista Hermosa, *H. E. Moore, Jr. & G. S. Bunting 8913* (holotype BH; isotype MEXU); *D. R. & R. J. Hodel 945* (BH; MEXU). CULTIVATION. United States. New York: Ithaca, grown in the

3. Large staminate inflorescence of *Chamaedorea vistae* has a rachis 80 cm long with 100 drooping rachillae, Lyon Arboretum, Honolulu, Hawaii.

conservatory of the L. H. Bailey Hortorium as *BH61-1178, H. E. Moore, Jr. & G. S. Bunting 8913 bis* (BH); *O. J. Blanchard s.n.* (BH).

The specific epithet is taken from the type locality, Vista Hermosa, an area of rugged, steep, densely forested slopes with panoramic views or vistas.

*Chamaedorea vistae* is a handsome and rather robust species. It is particularly striking when pistillate plants are bearing clusters of not-yet-mature, golden-orange fruits at the ends of long, arching peduncles. It differs from all other members of the genus in its combination of orange-yellow pistillate flowers, long-pedunculate inflorescences, long-pinnate leaves with prominently nerved pinnae, and solitary habit. *C. vistae* appears closest to *C. carchensis* from the Atlantic slope of Guatemala but can be distinguished by the more numerous (up to 36 versus 20), stiffly ascending pinnae with five prominent primary nerves, the larger staminate inflorescence with more numerous (up to 100 versus 40) rachillae; and the fruits first conspicuously golden-orange then soft-ripening black. In addition, *C. vistae* quickly develops a prominent above-ground stem while *C. carchensis* remains essentially acaulescent and flowers and fruits at this stage, forming a short stem much later.

*Chamaedorea vistae* is cultivated in gardens and collections in Hawaii, California, Florida, Australia, Costa Rica and, perhaps, elsewhere. Fruiting plants occur in Hawaii at Wahiawa Botanic Garden of the Honolulu Botanic Gardens, Waimea Arboretum, and Lyon Arboretum. Fruiting plants were also observed at Jardín Botánico Robert y Catherine Wilson (formerly Las Cruces Tropical Botanical Garden) near San Vito de Coto Brus in Costa Rica. These fruiting plants have been grown from seeds collected from plants growing in the conservatory of the L. H. Bailey Hortorium at Cornell University as *BH61-1178*. These were grown from seeds gathered by Moore when he first collected the species in México. From time to time, seeds produced on the plants at Cornell have been distributed by Moore and the Seed Bank

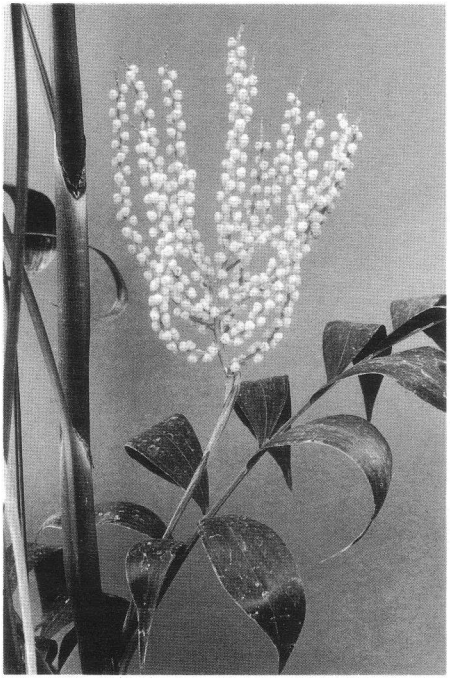
4. *Chamaedorea whitelockiana, D. R. Hodel 853*, in the garden of L. M. Whitelock, Los Angeles, California.

of the International Palm Society. Recently, Lyon Arboretum has begun to distribute seeds and seedlings of *C. vistae* under the number *BH61-1178.*

**Chamaedorea whitelockiana** D. R. Hodel & N. W. Uhl, sp. nov. (Figs. 4,5).

*C. digitatae* Standl. & Steyerm. et *C. pachecoanae* Standl. & Steyerm. et *C. parvisectae* Burret affinis sed segmentorum apicibus pendulis differt; a *C. digitata* segmentis pluribus, inflorescentiae rachidibus longioribus, rachillis masculinis pluribus differt; a *C. pachecoana* habitu non acaulescenti, vaginis magis clausis tubulosis, inflorescentiae rachidibus multo longioribus differt; a *C. parvisecta* caudicibus crassioribus, floribus masculinis grandioribus, rachillis femineis tenuibus apicibus spiniformibus differt. Typus: México, *D. R. & R. J. Hodel 935* (holotypus BH; isotypus MEXU).

Stem solitary, erect, to 2 m tall, 1–1.3 cm diam., green, ringed, internodes to 10 cm long, often covered with old persistent leaf bases; plants occasionally flowering with a much reduced inflorescence when very small and appearing acaulescent but actually having at this time a short subterranean caudex to 20 cm long, overall height at this stage including leaves less than 30 cm. Leaves 5–7, spreading, pinnate (Fig. 4); sheath to 17 cm long, tubular, tightly clasping, obliquely open apically and there the margin brownish and ragged with a brown ligule 5–8 mm long on either side of the petiole, below this the margin whitish and green, longitudinally striate-nerved; petiole 10–20 cm long, green and finely grooved adaxially, rounded and with a pale band abaxially extending from the rachis onto the sheath; rachis to 35 cm long, green and angled adaxially, pale and rounded abaxially; the blade to 40 × 15 cm; pinnae 7–9(13) on each side of the rachis, opposite or subopposite, lanceolate, falcately long-acuminate, thin-papery, the apical one-third of each pinna drooping and curling down and under, con-



5. Staminate inflorescence of *Chamaedorea whitelockiana, D. R. Hodel 852*, emerges from the leaf axils. Note the apices of the pinnae curving downward and under.

tracted at the base and there a hard knob or callus at the point of attachment, slightly iridescent gray-green adaxially, paler abaxially, lower middle ones the longest, to 15 × 3 cm, a prominent midrib and 2 ± inconspicuous secondary nerves on each side of this or the secondaries lacking, tertiary nerves faint and inconspicuous, pinnae progressively smaller toward the apex of the rachis, 2 basal pinnae smaller, apical pair the shortest of all with 2 prominent primary nerves; or when young and acaulescent, leaves finely divided, sheath 3–5 cm long, very open, completely sheathing only near the base; petiole 5–8 cm long; blade 20 × 12 cm; pinnae linear-lanceolate, straight, slightly falcate, 7 × 0.8 cm, only a midrib prominent, secondary and tertiary nerves inconspicuous.

Inflorescences interfoliar but often infrafoliar in fruit, erect. Staminate inflorescence (Fig. 5) with peduncle 25–30 cm long, 7–9 mm wide at the base and there flattened, 3–4 mm wide at the apex and there rounded, erect, greenish or pale at anthesis; bracts 7–8, tightly sheathing, obliquely open apically, longitudinally striate-nerved, drying brownish and papery at anthesis, acute-acuminate, to 3.5 cm long, 2nd bract to 6 cm long, 3rd to 9 cm long, 4th–7th to 10 cm long, 8th to 4 cm long; rachis to 5 cm long, slightly to strongly curved, lime-green at anthesis; rachillae 12–15, to 10–12 cm long, simple, erect, ± stiff, 1.5–2 mm diam., lime-green at anthesis. Pistillate inflorescence with peduncle to 40 cm long, erect, slender, 5 mm wide at the base and there flattened, 2.5 mm diam. at the apex and rounded, pale or greenish at anthesis, orange in fruit where exposed; bracts similar to those of the staminate; rachis 1–3 cm long, greenish at anthesis, orange in fruit; rachillae 6–8, to 10 cm long, erect, stiffish, slender, 2 mm diam., longitudinally ridged or angled or finely grooved, slightly spinose-tipped, greenish at anthesis, orange in fruit.

Staminate flowers in rather dense spirals, slightly immersed in elliptic depressions, 2–3 mm apart, depressed-globose, 3 × 4 mm; calyx low, 0.5 × 2.5 mm, pale yellow-green, shallowly 3-lobed; corolla 4 mm wide, bright yellow, petals valvate, free nearly to the base, broadly acute, incurved but not connate at the tips, 4–5 × 3 mm; stamens leaning away from and not exceeding the pistillode, filaments pale, 1–1.5 mm long, anthers 1–1.5 mm long; pistillode broadly columnar, lime-green, 2–2.5 mm high. Pistillate flowers arranged in lax spirals, slightly immersed in elliptic depressions, 4–5 mm apart, globose, 3 × 3 mm; calyx coroniform, 1–1.5 × 2–2.5 mm, prominently 3-lobed, lobes broadly rounded, green; petals imbricate basally and spreading apically, 3 × 2–2.5 mm, acute, glossy yellow; staminodes lacking; pistil globose, green, 2 × 2 mm, flattened

apically, styles lacking or reduced, stigmas pointed, short, dark green or brownish. Fruits black, globose, 7–8 mm diam.

*Distribution:* MÉXICO. Oaxaca: moist pine-oak forest on steep and rocky substrate on the Pacific slope; 1,400–1,900 m elev., probably endemic.

*Specimens Examined:* MÉXICO. Oaxaca: beyond San Gabriel Mixtepec along road from Puerto Escondido to Oaxaca, *D. R. & R. J. Hodel 935* (holotype BH; isotype MEXU). CULTIVATION. United States. California: Los Angeles, in the garden of L. M. Whitelock, *D. R. Hodel 687, 852, 853* (BH), all grown from seeds originally collected at the type locality.

*Chamaedorea whitelockiana* is named for Loran M. Whitelock of Los Angeles, California who, in 1981, collected the species in Oaxaca, México. Whitelock returned to Los Angeles with seeds and plants and established them in his garden where they were first brought to our attention.

A dainty and attractive plant, *C. whitelockiana* is close to *C. digitata, C. pachecoana,* and *C. parvisecta,* all from Guatemala. It can be distinguished from all in the drooping, downward-recurving tips of the pinnae. Probably closest to *C. parvisecta, C. whitelockiana* can also be distinguished from it by the much stouter stem; inflorescences interfoliar and not breaking through the sheaths; distinctly larger staminate flowers with broadly ovate petals; and much more slender, spinose-tipped, pistillate rachillae with laxly disposed flowers. It also differs from *C. digitata* in the greater number of pinnae, the much longer rachis of the inflorescence, and the staminate with many more rachillae. From *C. pachecoana,* it can be distinguished by its trunked habit, more tubular leaf sheaths, and the inflorescences with many more rachillae and a much longer rachis.

*Chamaedorea whitelockiana* exhibits a growth phase best described as juvenile, with plants characterized by their virtually acaulescent habit and finely divided leaves with numerous, narrow pinnae not unlike that of *C. elegans* Mart. Plants are not truly acaulescent during this period but actually possess a short, curving, rooting subterranean stem with highly congested nodes. Although remaining acaulescent for several years, they begin to flower and fruit during this phase with much reduced inflorescences until later forming a visible stem with normal-sized inflorescences and broader pinnae. This juvenile phase may allow the plants to become anchored securely in their substrate before developing an erect, above-ground stem.

## Acknowledgments

We thank Richard W. Palmer, Pauleen Sullivan, Bill Gunther, and the International Palm Society for supporting and encouraging Hodel's work on *Chamaedorea* and John Dransfield who reviewed and offered helpful suggestions on the manuscript.

## Errata

In *Principes* October 1989, p. 194. Lynn Muir's name was misspelled as Lynn "Mier"; this error was continued in the separate ballot for voting for Directors 1990–1994. The editors apologize.