

10 cm long, uppermost not exceeding the peduncle; rachillae 2-3 or sometimes spicate, flower-bearing portion 15-20 cm long, 1.5 mm diam., ascending, finely longitudinally striate. Pistillate inflorescence spicate or less often furcate; peduncle 15 cm long, erect-ascending, or nodding when laden with fruits; bracts similar to those of the staminate; rachis or flower-bearing portion to 15-20 cm long, 2 mm diam., finely longitudinally striate, ascending in flower, horizontal and red-orange in fruit.

Staminate flowers, rather densely arranged, subglobose in immature bud, 2×2.5 mm, greenish-yellow, just prior to anthesis 2.5×2 mm, yellowish, \pm superficial; calyx low, 2.5-3 mm across, membranous, 3-lobed, lobes connate basally; corolla with the petals valvate, connate only briefly basally, spreading apically, petals rounded-triangular, $2-2.5 \times 2.5$ mm, acute, obscurely nerved; stamens with the filaments very short, anthers 0.75-1.25 mm long, flush against the base of the pistillode; pistillode columnar, 1.5-2 mm high, green or yellowish, broadly lobed apically, flared at the base and there adnate to the filaments. Pistillate flowers, rather densely arranged, ovoid-globose, 2×2 mm, greenish-yellow, \pm superficial; calyx green, 2.5 mm across, 3-lobed, lobes 1-1.25 mm high, sepals connate briefly basally, \pm fleshy; corolla with the petals imbricate basally, spreading apically, yellowish, $2-2.5 \times 2$ mm, long-triangular, acute; pistil globose, pale or greenish, $2-2.5 \times 2$ mm, styles short, stigmas flattened, recurved, pointed. Fruits ellipsoid-globose, black, 5-8 mm long.

Distribution: PANAMA. Veraguas. Coclé. Colón. Dense, wet forest and cloud forest mainly on the Atlantic slope at or near the Continental Divide, 800-1,000 m elevation. Probably endemic.

Specimens Examined: PANAMA. Veraguas: Santa Fe, *S. Knapp* & *W. Kress* 4358 (MO); *S. Mori* 6717, 6775 (MO); *R. Liesner* 1001 (MO) (Fig. 6); *C. Hamilton* & *R. Dressler* 3075 (MO). Coclé:

El Valle, *W. H. Lewis et al.* 1775 (BH, MO); *K. Sytsma* 3806 (MO); *S. Knapp* 5296 (MO); El Copé, *T. Croat* 44680, 49190 (MO); *T. Antonio* 3037 (MO); *J. Folsom* 1272, 2491, 3191 (MO); *J. Folsom et al.* 5735 (MO) *B. Hammel* 2413 (Fig. 7), 2604, 13649 (MO); *H. E. Moore Jr.* 10531 (BH); El Potroso, *K. Sytsma* 1814 (MO); Los Pedregales, Cerro Tife, *S. Knapp* & *R. Dressler* 3801 (holotype, MO; isotype, PMA); Cerro Caracoral, *J. Kirkbride* 1097 (MO). Colón: Santa Rita Ridge, *H. Churchill* 5547 (MO).

The name honors Mireya Correa, well known botanist and professor at the University of Panama. With creeping stems that root at the nodes and thickish and somewhat leathery, gray-green leaves, *C. correae* is one of the most distinctive members of the genus. It inhabits wind-swept, elfin cloud forest near or at the Continental Divide. *C. correae* is close to *C. guntheriana* but can be distinguished by its larger leaves with broader, more divergent lobes, longer peduncles, and flowers attaining anthesis at more or less the same time along the axis rather than in a conspicuously progressive, basal to apical manner.

***Chamaedorea guntheriana* D. R.**

Hodel & N. W. Uhl. **sp. nov.** (Figs. 8, 9, 11).

Subgeneris *Chamaedoropsis* Oerst. Species egregia foliis parvis rigidis, laminis segmentis paucis paribus apicalibus latioribus vel raro simplicibus bifidis, inflorescentiis furcatis vel rachillis 3 raro spicatis, petalis liberis, flavis; *C. correae* D. R. Hodel & N. W. Uhl affinis sed floribus masculis maturescentibus conspicue secus axem e basi ad apicem differt. Typus: *D. R. & M. A. Hodel* 746 (holotypus, BH; isotypus, PMA).

Stem solitary, erect or procumbent, to 1 m tall, 5-7 mm diam., smooth, green, ringed, conspicuously and minutely white-spotted, internodes to 2-4 cm long.

Leaves 4-5, spreading, \pm stiff, \pm thick,



8-9. *Chamaedorea guntheriana*, D. R. & M. A. Hodel 746, at the type locality on Cerro Jefe in Panama. 10. *Chamaedorea sullivaniorum* at the type locality near El Valle, Panama. Note the short petioles and compact crown. 11. Staminate inflorescences of *C. guntheriana*, D. R. Hodel 856, on plant cultivated in Los Angeles, California. It was originally collected at the type locality. Note the manner in which the flowers attain anthesis successively up the axis.

pinnate (Figs. 8,9) or less often simple and bifid; sheath to 9 cm long, tubular, tightly clasping, longitudinally striate-nerved, obliquely open at the apex; petiole to 9 cm long, gray-green and \pm rounded or slightly flattened adaxially, rounded and gray-green abaxially with a faint yellow band extending from the rachis onto the sheath; rachis to 12 cm long, greenish and angled adaxially, rounded and greenish abaxially; petiole adaxially and abaxially

and the rachis abaxially gray-green and densely white-spotted; pinnae 1-4 on each side of the rachis, basal ones to 12×2.5 cm, lanceolate, falcately acuminate, narrowed at the base, \pm thick and coriaceous, 2-3 prominent nerves, apical pair larger (or if simple and bifid), to 19×3.5 cm with 5 conspicuous primary nerves, all pinnae with numerous secondary nerves, these \pm faint, pinnae drying heavily striated.

Inflorescences infrafoliar, stiff and

ascending, to 15–20 cm long. Staminate inflorescence furcate, with 2 rachillae (Fig. 11), or infrequently spicate; peduncle to 5–6 cm long, 2.5–4 mm wide at the base and there \pm flattened, 1.5–3.5 mm diam. at the apex and there rounded, ascending, greenish at anthesis; bracts 4, these brownish at anthesis, coriaceous, acute-acuminate, bifid, prophyll 5 mm long, 2nd bract 1 cm long, 3rd 2–3 cm long, 4th 4 cm long, tightly sheathing basally, \pm inflated apically; rachis or flower-bearing portion if spicate or rachillae to 10–12 cm long, to 2 mm diam., green, ascending. Pistillate inflorescence spicate; peduncle similar to that of the staminate but brownish or dull orange in fruit; bracts similar to those of the staminate but greenish at anthesis; rachis or flower-bearing portion to 6 cm long, 2.5 cm diam., erect, greenish at anthesis, becoming thickened and dull orange in fruit.

Staminate flowers in moderately dense spirals, maturing basally first and then attaining anthesis progressively toward the apex of the axis, oblong to bullet-shaped, 2.5–3 \times 2–2.5 mm, bright yellow, slightly immersed; calyx ringlike, 1 \times 2.5 mm, pale green or yellowish, shallowly 3-lobed, lobes broadly rounded, sepals imbricate basally; corolla with the petals valvate, erect, spreading, free nearly to the base, 2–2.5 \times 2 mm, acute, \pm thick; stamens 1–1.5 mm high, filaments short, clear-colored, anthers brownish, bilobed, 0.5 mm long; pistillode columnar, 2–2.5 mm long, whitish, expanded basally and there 0.8 mm diam., apically 0.5 mm diam. and there yellow ageing to red. Pistillate flowers in moderately dense spirals, bullet-shaped, 2.5–3 \times 1.5–2 mm, yellow, slightly immersed; calyx ringlike, thickened, 0.75 \times 2.5–3 mm, pale green; corolla with the petals imbricate basally, spreading apically, 2 \times 2.5–3 mm; pistil pale greenish, stigmas short, pale, recurved. Fruits globose, black, 6 mm diam.

Distribution: PANAMA. Panama. Windswept, moist, relatively open, dwarf

cloud forest, 900–1,000 m elevation, at or near the Continental Divide. Probably endemic.

Specimens Examined: PANAMA. Panama: Cerro Jefe, D. R. & M. A. Hodel 746 (holotype, BH; isotype, PMA); J. & F. Witherspoon 8496 (MO); R. Foster & H. Kennedy 1887 (MO); J. Dwyer & S. Hayden 8090 (MO); S. Mori & J. Kallunki 2378 (BH, MO), 3794, 6094 (MO). Pavon Road, S. Mori & J. Kallunki 2723 (MO). CULTIVATED. United States. California: Los Angeles, in greenhouse, D. R. Hodel 856 (BH), originally collected at the type locality in Panama.

The name honors Bill Gunther of Del Mar, California, who has encouraged and supported Hodel's work on *Chamaedorea*.

Chamaedorea guntheriana is a most unusual palm in habitat and habit. It occurs sparingly in dwarf, windswept, relatively open cloud forest at the Continental Divide in central Panama. This is not the typical, dripping-wet cloud forest festooned with epiphytes that one encounters in other parts of Panama and Costa Rica. Rather, certain elements of it seem to be of an almost sclerophyllous nature. The low, open, shrubby forest contains no tall trees. Many of the species occurring there have thick, grayish-green leaves as does *C. guntheriana*. Another aspect in which *C. guntheriana* is unusual is the manner in which the staminate flowers attain anthesis; this they do in a very pronounced, progressive manner successively from the basal end of the rachis or rachillae to the distal end (Fig. 11).

With grayish-green, thick, stiffish pinnae, *C. guntheriana* is similar to *C. correae* but can be distinguished by its slightly smaller and usually pinnate leaves and the staminate flowers attaining anthesis in a progressive manner along the axis basally to apically rather than simultaneously.

***Chamaedorea sullivaniorum* D. R. Hodel & N. W. Uhl. sp. nov.** (Figs. 10, 12).