

and accessibility to collectors suggest the species is endangered at the local level in Panamá.

Chamaedorea incrustata Hodel, G. Herrera & Casc. sp. nov. Figs. 7-9, and inside back cover.

Subgeneris *Chamaedoropsi* Oerst. inflorescentiis masculis solitariis, floribus masculis solitariis petalis patentibus apicaliter pertinens. Species insignis rhachidi et rachillis fructificantibus valde dense incrustatis trichomatibus minimis stellatis albidis et pinnis valde navicularibus, a ceteris speciebus bene distincta. Typus: Costa Rica, *Hodel, Cascante, Chacón & Herrera 1532* (holotypus BH; isotypi CR,MO).

Solitary, erect, understory palm to 6 m tall. Stem 2-3 cm diam., smooth, ringed, internodes to 20 cm long, light green, large adventitious prop roots to 7-8 mm diam. below leaf litter, apical portion of stem with old, brownish, often tattered or shredded, persistent leaf sheaths. Leaves 3-5, ascending to spreading; sheath to 35 cm long, tubular, obliquely open in distal 6 cm, thick, coriaceous, grayish lime-green distally when fresh, drying prominently striate with a conspicuous slightly raised central costa; petiole (excluding sheath) to 17 cm long, 7-9 mm diam., rounded abaxially, flattened or grooved adaxially, grayish lime-green with dense minute spots when fresh, minutely rough-pebbled when dry; rachis to 85 cm long, rounded abaxially, angled adaxially, color and surface texture (especially proximally) similar to that of petiole; up to 11 pinnae per side, proximal pair to 32 x 5 cm, acuminate, middle pinnae to 37 x 10 cm, long-acuminate, caudate, distal pinnae to 15 x 3.5 cm, pinnae opposite proximally and to 6 cm distant to alternate medially and to 13 cm distant to subopposite distally and to 3 cm distant, straight, conspicuously falcate, thick, iridescent grayish blue-green and strongly cupped downward when fresh resulting in drying prominently wrinkled and plicate, nerves not too conspicuous when fresh, when dry a conspicuous midrib adaxially, middle pinnae with 4-5 primary nerves on each side, 2-3 faint secondaries between each pair of primaries, tertiaries numerous, faint, all nerves lighter colored and more prominent abaxially. Staminate inflorescences 1-2, infrafoliar, breaking through old persistent sheaths, branching to 2 orders; peduncle to 60 cm long (ca. 5 cm basal portion of peduncle missing), 2 cm wide and

flattened at base, 1 cm diam. and rounded at apex; prophyll and perhaps 1-2 additional bracts missing, 7 bracts present, 2 proximal ones 9 cm long, acuminate, +/- flattened and with a small wing on each side longitudinally, (5 distal bracts with proximal portions only, distal portions missing) 3rd bract 26 cm long, 4th 19 cm long, 5th 18 cm long, 6th 23 cm long, 7th 9 cm long, all bracts thick-papery, longitudinally striate when dry; rachis 24 cm long, longitudinally ridged, the ridges crusty or roughly crinkled, proximal 10 cm of rachis with 10 branches each with 2-4 rachillae, branches to 3 cm long, distal 14 cm of rachis with only simple rachillae; up to 58 rachillae total, to 16 cm long. Pistillate inflorescence in young or old fruit only, peduncle to 55 cm long, 1 cm wide at prophyll attachment and flattened, arcuate, green in young fruit and red-orange and scabrous where exposed distally in old fruit; bracts as in staminate inflorescence; rachis 14 cm long, green in young fruit, red-orange in old fruit, longitudinally ridged, the ridges conspicuously encrusted with thin, long, irregular, sometimes wavy, platelike, corallike protuberances resulting in a conspicuously crusty or roughly crinkled appearance and feel, the protuberances to 1-1.5 mm high and bearing on their margins and apices concrescent clusters of slender, stellate, white, simple hairs to 0.05-0.1(-0.5) mm long, proximal portion of rachis with 2 branches, each with 4 and 2 rachillae each respectively, each branch 2.5 cm long, 5 mm wide and flattened proximally, 1 mm diam. at apex, remaining distal portion of rachis with simple rachillae; up to 23 rachillae total, to 13 cm long, 1-3 mm diam., ascending, scabrous and rough as in rachis, green in young fruit, red-orange in old fruit. Staminate and pistillate flowers not seen. Fruits immature, 9 x 5 mm, oblong, green, arranged in 2 spiraling rows, fruits 3 mm distant within a row, rows 5 mm distant as they spiral vertically; fruiting perianth 3 x 4 mm, sepals 1-1.25 x 1-1.5 mm, connate and/or imbricate in basal 1/2, broadly rounded apically, +/- thin, faintly nerved, petals 3-4 x 3-4 mm, broadly ovate, imbricate in basal 1/2-2/4, thin, transparent, light-colored, with a central costa, margins and area near central costa thickened.

Distribution: COSTA RICA. Moist or wet forest and cloud forest, to 1600 m elevation.

Additional Specimens Examined: COSTA RICA. *Hodel et al. 1531* (BH,CR); *Herrera 7425*

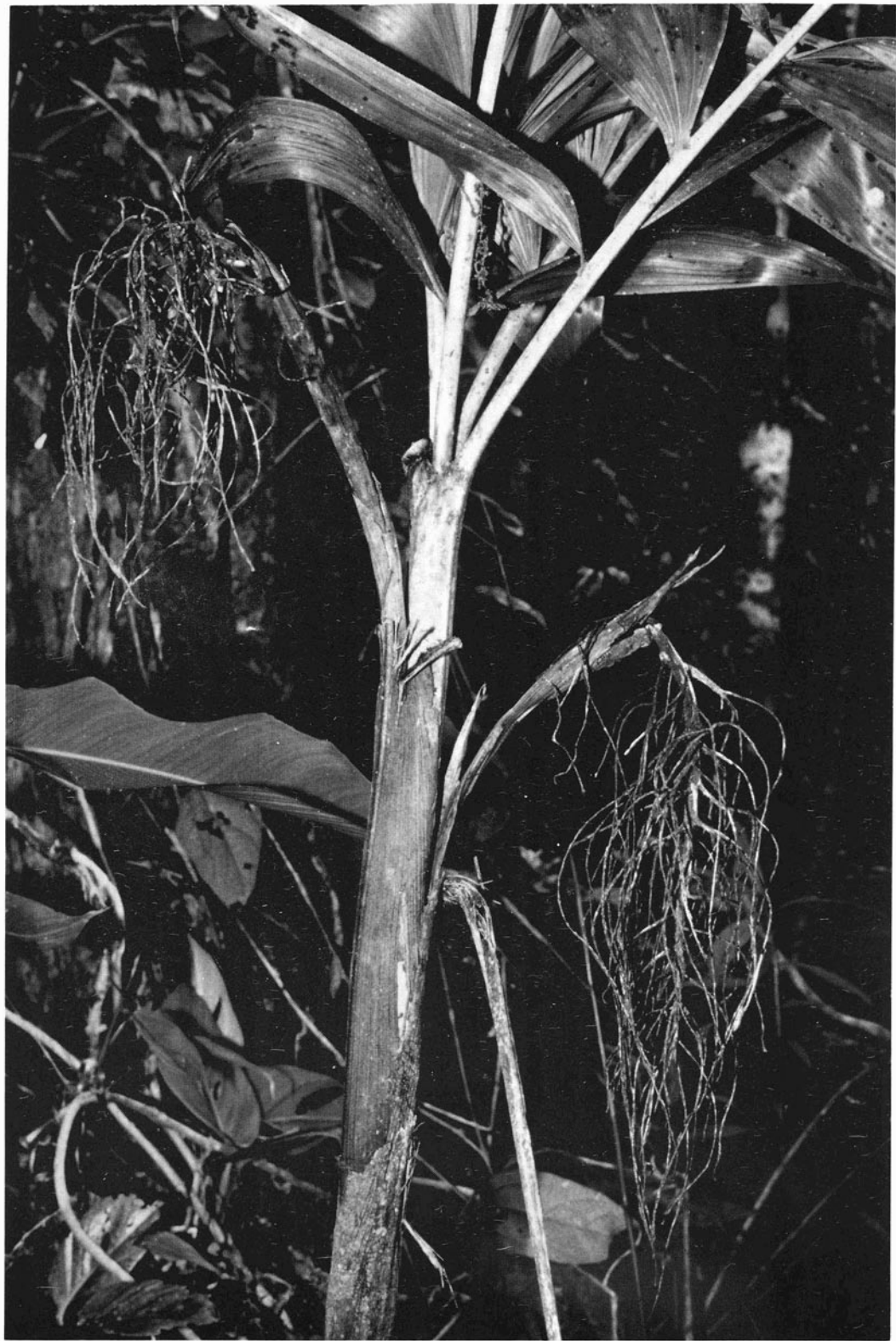


Fig. 7 *Chamaedorea in crustata*, old staminate inflorescences, Hodel et al. 1531.

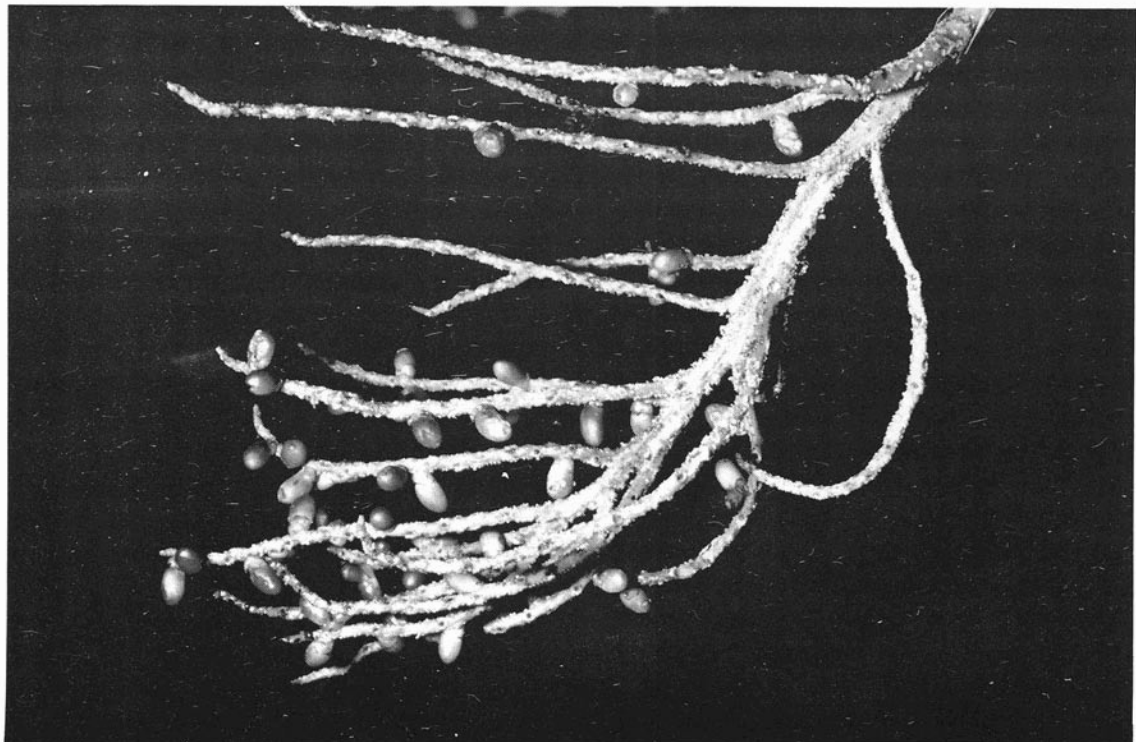


Fig. 8 *Chamaedorea incrustata*, immature fruits, note encrusted rachis, *Hodel et al. 1542* (holotype).

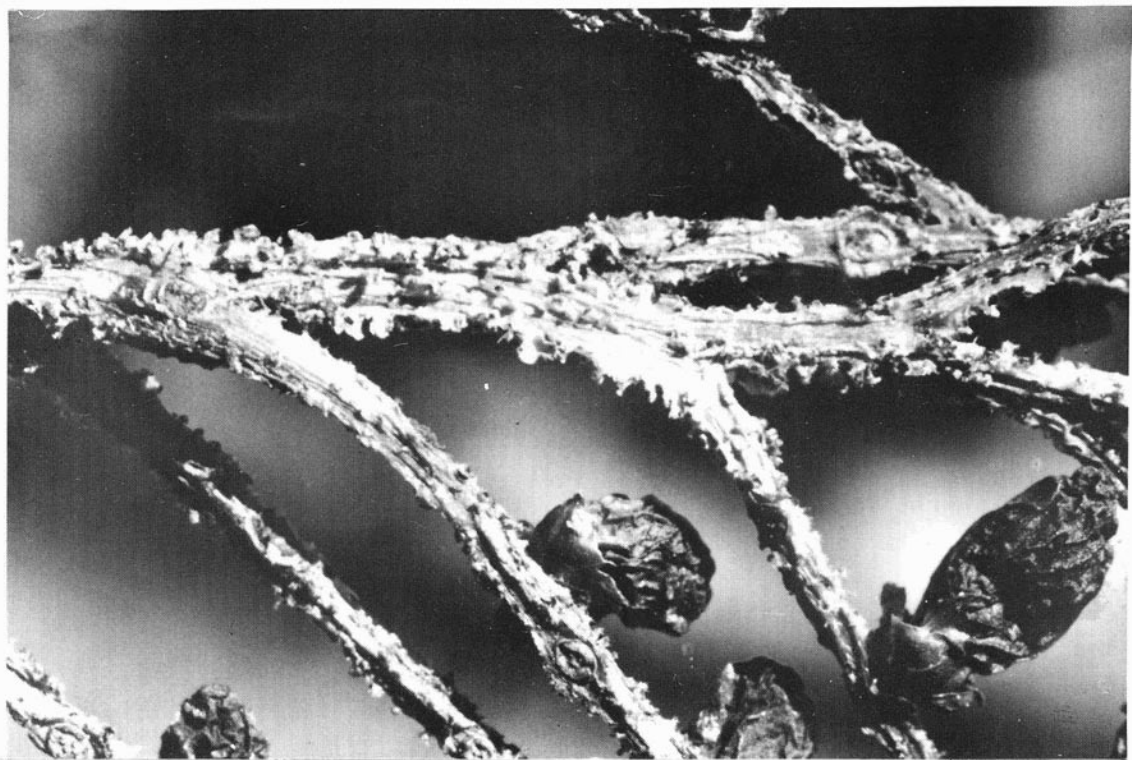


Fig. 9 *Chamaedorea incrustata* showing details of encrusted rachillae and rachis, *Hodel et al. 1542* (holotype).

(BH,CR).

The specific epithet is from the Latin *incrustatus*, meaning encrusted, and is used here in reference to the fruiting inflorescence with its prominently rough, crusty rachis and rachillae, a diagnostic character for the species and a feature unique in the genus. Indeed, this distinctive and diagnostic character is as peculiar for *Chamaedorea incrustata* as the unusual leaf blade is for *C. piscifolia*. This rough, crusty, and crinkled appearance and feel is the result of incredible and spectacular encrustations more or less arranged along the longitudinal ridges of the rachis and rachillae. These outgrowths are 1-1.5 mm high, crusty, thin, long, irregularly shaped, and sometimes wavy, and have a resemblance to some types of the plate- and fanlike tropical corals. They bear on their margins and apices conrescent, stellate clusters of minute, slender, white, simple trichomes, also a diagnostic character for the species and a feature unique in the genus. While several other species in the genus (*C. foveata* Hodel, *C. woodsoniana* L. H. Bailey, and *C. pittieri* L. H. Bailey) have petioles or rachillae sometimes only slightly rough to the touch, none have such conspicuous, crusty outgrowths, large and prominent enough to be visible even to the naked eye.

In addition to the conspicuously crusty, trichome-bearing rachis and rachillae, *Chamaedorea incrustata* has two other characters that, while not unique in the genus, are nevertheless unusual. These unusual characters are the strongly cupped, boatlike pinnae and inflorescences branched to two orders. *C. incrustata* is probably closest to *C. pittieri*, with which it has similar foliage; however, the latter is much smaller in habit, leaves, and stem, and has inflorescences branched to only one order and with less than one-fourth the number of rachillae.

Although flowers were not found, the solitary inflorescences and fruiting perianth not prominently nerved when dry suggest *Chamaedorea incrustata* is best placed in subgenus *Chamaedoropsis*.

Known with certainty from only two areas about 20 kilometers apart in Costa Rica, at least one of which is in proximity to human activity, it probably is prudent tentatively to designate *Chamaedorea incrustata* as endangered; it is certainly rare and, at the least, vulnerable.

***Chamaedorea rosibeliae* Hodel, G. Herrera & Casc. sp. nov.** Fig. 10.

Subgeneris *Chamaedoropsi* inflorescentiis masculis solitariis, floribus masculis solitariis petalis patentibus apicaliter pertinens. Species insignis petiolo, rhachidi et pinnis abaxialiter basilariter valde dense nodulis, a ceteris speciebus bene distincta. Typus: Costa Rica, Limón, Cantón de Talamanca, Alto Urén, Cerro Laübeta, *Herrera* 3386 (holotypus INB)

Solitary, creeping, decumbent, understory palm. Stem prostrate, long-creeping, 6 mm diam., internodes 5-6 cm long, rooting at nodes. Leaves 6; sheath 11.5 cm long, tubular; petiole (excluding sheath) 3 cm long; rachis 13.5 cm long, slender, attenuate distally; abaxial surface of rachis and petiole with conspicuous, dense nodules extending onto abaxial and proximal portion of pinna nerves; 4 pinnae per side, largest to 10 x 3.5 cm, +/- thin-papery, strongly sigmoid, long-acuminate, cupped downward, 2-3 primary nerves on each side of the midrib, secondaries and tertiaries variable and faint, all nerves light-colored adaxially and abaxially. Staminate inflorescence 17 cm long, spicate; peduncle 4 cm long; bearing 4 bracts (only tattered and shredded fragments remaining), prophyll fragment 4 mm long, 2nd bract 6 mm long, 3rd 9 mm long, 4th 5.5 mm long and exceeding rachis; rachis 13 mm long. Staminate flowers conspicuously maturing acropetally along rachis, green in bud, yellowish at anthesis, lower 4 cm of rachis already devoid of flowers and leaving elliptic, raised scars 0.75 mm long; flowers in 3 densely spiraling rows, flowers 0.75 mm distant within a row, appearing contiguous at anthesis, rows 1.25 mm as they spiral around rachis vertically, petals of adjacent flowers touching; flowers 2.25 x 2.5 mm, calyx 1 x 2.5 mm, cupular, whitish, thin, +/- transparent, sepals connate in basal 1/2-2/3, broadly rounded-acute apically; petals 2 x 2 mm, deltoid or triangular, valvate, spreading, free nearly to base, acute, +/- transparent, faintly nerved; stamens 1 mm long, filaments 0.5 mm long, anthers 0.75 mm long, bilobed, elliptic, dorsifixed above base, opening longitudinally and laterally; pistillode 1.5 mm long, shorter than petals, columnar, truncate apically. Pistillate inflorescence, flowers, and fruits not seen.

Distribution: COSTA RICA. Limón. Moist to wet forest on the Atlantic slope toward the Panamanian border, 1190 m elevation.