

Staminate inflorescences infrafoliar or interfoliar; peduncle to 15 cm long, 5 mm wide at base and there flattened, 1.8–2 mm diam. at apex and there \pm rounded, pale to green at anthesis; bracts 4–5, long-lanceolate, obliquely open apically, finely longitudinally striate-nerved, papery, greenish to brown at anthesis, lower ones acute, upper ones acute-acuminate, prophyll 2 cm long, 2nd bract 6 cm long, 3rd 9 cm long, 4th 10 cm long and exceeding peduncle, 5th 4 cm long and sometimes concealed by the larger 4th; rachis to 3 cm long, greenish in flower; rachillae 6–10, to 10 cm long, slightly drooping.

Staminate flowers in \pm dense spirals, 1–2 mm apart, only slightly immersed in superficial elliptic depressions 3×1.5 mm, \pm globose, $2\text{--}2.5 \times 1.8\text{--}2.5$ mm, greenish yellow at anthesis, drying brownish; calyx $0.8\text{--}1 \times 1.8\text{--}2$ mm, deeply 3-lobed nearly to base, lobes rounded to acute, only lightly nerved; petals valvate, connate apically and there adnate to pistillode and the corolla opening by basal and lateral apertures, petals 2.5×2 mm, acute, \pm thin, lightly longitudinally striate-nerved; stamens 1.25–2 mm long, anthers sessile or nearly so, 2 mm long, longitudinally bilobed; pistillode columnar, 2–2.5 mm tall, very slender, slightly flared apically. Pistillate flowers and fruits not seen.

Distribution: PANAMA. Panama. Coclé. Dense, wet forest and cloud forest at or near the Continental Divide, 800–1,000 m elevation.

Specimens Examined: PANAMA. Panama: Cerro Campana, letter and photograph from H. F. Loomis to H. E. Moore, G. Fairchild & H. Loomis s. n. (BH). Coclé: El Valle de Antón, D. R. & M. A. Hodel 745 (holotype, BH; isotype, PMA).

The epithet is from a Latin word meaning creeping and rooting, in reference to the stems of this species. *C. serpens* is one of the most unusual members of the genus with its sprawling, procumbent, slender stems rooting and sprouting at the nodes along their length. The stems appear to

grow upright until about a meter tall at which point they tend to fall over. In this manner, they form a rather loose colony of tangled stems several meters across and a meter high. The only other member of the genus approaching it in the branching habit of the stems is a form of *C. elatior* from Veracruz and Oaxaca, Mexico, that is easily distinguished by its long, vining, climbing stems and leaves with 10 or more, often deflexed, pinnae on each side of the rachis.

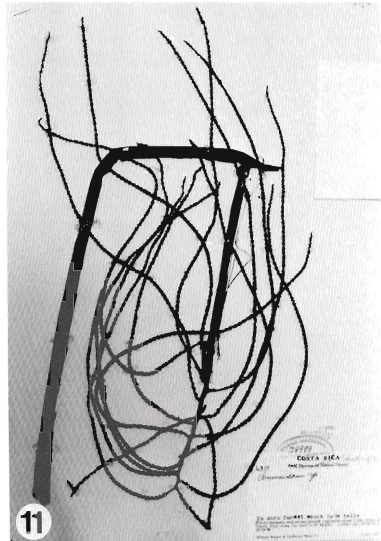
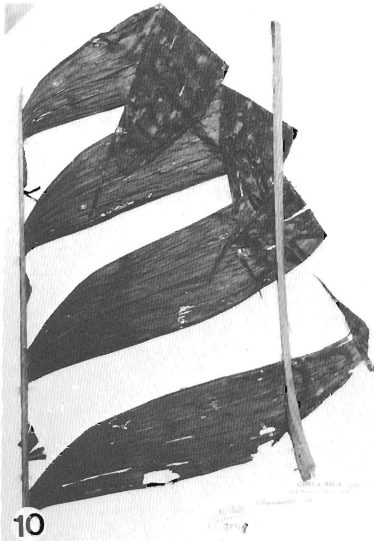
Florally, *C. serpens* is close to *C. pinnatifrons* from northern South America and related species including *C. warszewiczii* and *C. murriensis*. However, *C. serpens* is amply distinct in its creeping stems rooting and sprouting at the nodes and generally much smaller overall habit.

Chamaedorea serpens occurs in wet forest and cloud forest at about 1,000 meters elevation in western central Panama. It is not a common plant. We found it on the sides of steep ravines near El Valle where it occurs in dense forest often shrouded in clouds. This is an area rich in chamaedoreas; nearby grow *C. allenii*, *C. amabilis*, *C. correae*, *C. costaricana*, *C. pinnatifrons*, *C. sullivaniorum*, *C. tepejilote*, *C. warszewiczii*, and *C. woodsoniana*.

Chamaedorea selvae D. R. Hodel **sp. nov.** (Figs. 10–12).

Subgeneris *Chamaedoropsi* Oerst. inflorescentiis masculis solitariis, floribus masculis solitariis petalis patentibus apicaliter. *C. tepejiloti* Liebm. ex Mart., *C. deneversianae* Grayum & Hodel et *C. murriensi* Galeano habitu affinis sed subgeneri diverso pertinens subgenere differt. *C. vistae* Hodel & Uhl, *C. carchensi* Standl. & Steyerl. et *C. woodsonianae* L. H. Bailey affinis sed pinnis paucioribus (3–8 utrinque versus 20 vel plus) latioribus differt. Typus: Costa Rica, W. Burger & G. Mata 4337 (holotypus, CR; isotypus, F).

Stem solitary, (rarely cespitose? *Ste-*



10, 11. Portion of leaf (10) and staminate inflorescence (11) of *W. Burger & G. Mata 4337*, holotype of *C. selvae*.

vens 24461), erect, to 2 m tall, 2 cm diam. Leaves 4–5, spreading, pinnate; sheath green with no pale stripe extending onto rachis abaxially; petiole to 35 cm long, robust; rachis to 66 cm long; pinnae 3–8 on each side of rachis (Fig. 10), to 45 × 9 cm, broadly lanceolate, sigmoid, falcately acuminate, thin-papery, 6–10 primary nerves prominent and elevated adaxially, 1 secondary between each of 2 primaries, tertiaries numerous, faint, primaries paler abaxially, end pair of pinnae sometimes very large, then each lobe to 50 × 30 cm on a rachis 40 cm long with 30 primary nerves on each side, outer margin remotely toothed toward apex.

Inflorescences infrafoliar, attached well below the leaves; peduncles erect, ± robust, to 75 cm long, 7–8 mm diam.; bracts 5–6, tubular, tightly sheathing, acuminate, fibrous, longitudinally striate-nerved, prophyll to 3 cm long, 2nd bract to 10 cm,

3rd to 25 cm, 4th to 40 cm, 5th to 35 cm, 6th to 30 cm. Staminate inflorescence with rachis to 10 cm long, straight; up to 17 rachillae (Fig. 11), these to 30 cm long, slender, pendulous. Pistillate inflorescence with rachis to 7 cm long, ± straight; up to 11 rachillae (Fig. 12), these to 20 cm long, drooping in flower, pendulous and orange in fruit.

Staminate flowers in superficial and elliptic depressions 1.25 mm long, not strongly nerved abaxially when dry, in bud arranged in moderately dense spirals but not contiguous, 0.5–1 mm apart, ± dome-shaped, 1 × 1.25–1.5 mm; calyx coriiform, 1.5 mm across, ± thick, deeply 3-lobed, lobes rounded, 0.5 × 1.5 mm, sepals connate and/or imbricate basally; petals valvate, spreading, 1 × 1.5 mm, acute, stamens with anthers 0.65 mm high, tightly appressed around pistillode, pistillode columnar, 0.75 mm high, apically

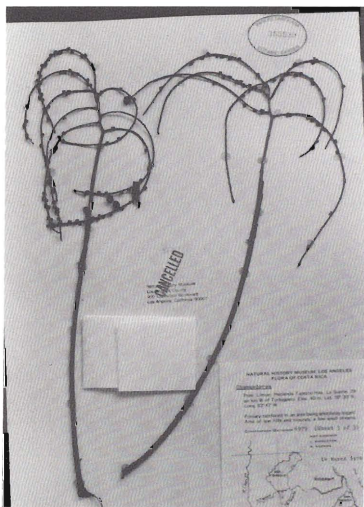
lobed. Pistillate flowers in moderately dense spirals 1–2 mm apart, leaving shallow elliptical scars 1.5 mm long, \pm globose, 2×2 mm, sepals of fruiting perianth imbricate basally, broadly rounded, 0.75×1.75 mm; petals of fruiting perianth imbricate basally, 1.75×2.5 mm, acute, petals and sepals lightly nerved adaxially; pistil ovoid, 1.25 mm high, stigma lobes pointed, erect, darkened. Fruits green when immature, oblong, 7×5 mm, maturing black.

Distribution: COSTA RICA. Limón. Heredia. San José. NICARAGUA. Río San Juan. Hillsides in wet, lowland forest on the Atlantic slope mostly below 200 m but occasionally to 700 m elevation.

Specimens Examined: COSTA RICA. Limón: 29 air kms west of Tortugera at Hacienda Tapezco and Hacienda La Suerte, *C. Davidson et al.* 6979 (RSA); 8 kms north of Linda Vista, *R. Liesner et al.* 15449 (CR); Cerro Coronel, east of Laguna Danto, *W. Stevens & O. Montiel* 24461 (CR). Heredia: 5 kms north of Puerto Viejo, *W. Burger & G. Mata* 4337 (holotype, CR; isotype, F); Puerto Viejo, La Selva, *M. Grayum* 9625, 9627 (CR), *H. E. Moore & G. Hartshorn* 10122 (BH), *N. Hammer & S. Gonzales* 112 (FTG). San José: Braulio Carrillo National Park, Sendero Chacón, *N. Zamora & P. Sanchez* 446 (CR); Estación Carrillo, *I. Chacón & G. Herrera* 1625 (CR). NICARAGUA. Río San Juan: between San Juan del Norte (Greytown) and Delta de San Juan along Río San Juan, *G. Bunting & L. Licht* 873 (F).

The specific epithet is derived from the Spanish *selva* meaning jungle (lowland tropical rain forest). A majority of the collections comes from such a habitat below 200 m elevation; four of the collections are from La Selva, the O.T.S. station near Puerto Viejo. Only the two collections from Braulio Carrillo National Park are from above 200 m elevation.

Leaves of *C. selvae* are very similar to those of *C. tepejilote*, especially in the venation. However, the short peduncles,



12. Pistillate inflorescence of *C. selvae*, *C. Davidson et al.* 6979.

contiguous staminate flowers, and prominent yellow stripe on the abaxial surface of the rachis and petiole distinguish this latter species. *C. deneversiana* is also somewhat similar vegetatively but differs in the flexuous rachises of the inflorescences, fewer and shorter rachillae, and apically connate staminate petals.

Perhaps *C. vistae*, *C. carchensis*, and *C. woodsoniana*, all from higher altitudes, are most closely related to *C. selvae*. However, these three are amply distinct in their narrower and more numerous pinnae (20 or more on each side of the rachis versus 3–8 for *C. selvae*). In addition, *C. vistae* and *C. carchensis* have many more staminate rachillae (80–100 and 40 respectively versus 17 for *C. selvae*).

The only species of subgenus *Chamaedoropsis* that occurs in the same range as *C. selvae* is the highly variable *C. dammeriana*. However, the interfoliar inflorescences, few-branched staminate inflorescences, usually spicate or furcate

pistillate inflorescences, and much smaller habit (about half the size of *C. selvae*) distinguish this latter species.

Chamaedorea selvae is rare over its range and should probably be considered endangered due to destruction of lowland forest in Limón, Heredia, and Alajuela provinces of Costa Rica and adjacent portions of Nicaragua. In fact, several of the collections are from forest remnants, indicating that suitable habitats for its growth are noncontiguous and isolated. *C. selvae* does exist in protected areas; it is well documented at La Selva as *Chamaedorea sp. nov.* fide Moore (Chazdon 1985, 1987; Moore and Chazdon 1985).

Principes, 33(3), 1989, pp. 00-00

Palmy Extracts

compiled by Bill Gunther

"Palms are excellent, graceful, and durable decorators from regions where their strong roots can reach the water. Remember, then, never to let palms dry out at the roots, and when watering, soak them thoroughly. Brown tips may be caused both by drying out in warm surroundings, as well as by an overly wet condition at their roots, especially when cold."

by Alfred Byrd Graf, in EXOTICA 3, 1968.

"We can have, right in New York, during our summer, a temperature and humidity every bit as tropical as Jakarta, Java, or Belem, Brazil—excepting only for the absence of the daily tropical rains. Only because the unmerciful cold season following forbids it, are we without the visual evidence in the landscape of the real tropics, the graceful palm tree."

by Alfred Byrd Graf, in EXOTICA 3, 1968.

Acknowledgments

I thank John Dransfield and Natalie Uhl for reviewing and offering helpful suggestions on the manuscript.

LITERATURE CITED

- CHAZDON, R. 1985. The palm flora of Finca La Selva. *Principes* 29(2): 74-78.
 ———. 1987. The palm flora of Braulio Carrillo National Park. *Brenesia* 28: 107-116.
 MOORE, H. E., JR. AND R. CHAZDON. 1985. Key to the palms of Finca La Selva, Costa Rica. *Principes* 29(2): 82-84.

"Rio de Janeiro is enchanting and tropical, spreading between conical mountains of the Serra de Carioca and Guanabara Bay, a maze of beautiful vistas and picturesque valleys. Slender palms testify to a warm and humid climate, and none is more imposing than the Royal palm, Roystonea regia."

by Alfred Byrd Graf, in EXOTICA 3, 1968.

"On the island of New Georgia in the Solomons group, during World War II, the Japanese used a 'fairy palace supported by a hundred columns' to conceal an aerodrome which they were making. The trunks (of the palms) were cut, but the crowns remained, supported by cross cables. One day there was a coconut plantation and the next revealed to American aviators an air-strip in use."

E. J. H. Corner, THE NATURAL HISTORY OF PALMS, 1966.