

In spite of being, all things considered, the most anomalous *Desmoncus* yet described, *D. stans* is surprisingly unprepossessing in the field. Had the Osa population not been in fertile condition during our most recent visit, we would undoubtedly have passed the plants over as juveniles of some more typical (i.e., high-climbing) species, as was presumably done during several previous excursions to the same site. Could these plants, indeed, simply be precociously flowering juveniles that would ultimately become scandent? We consider this exceedingly unlikely. The Las Cruces clones have been in cultivation there for about 10 years, and are thriving, flowering and setting fruit. However, they show absolutely no tendency toward climbing, nor toward the production of modified terminal pinnae.

Certain typically scandent (as adults) species of *Desmoncus* are known to have a free-standing juvenile stage (e.g., in the Amazon basin; A. Henderson, pers. comm.). Thus, the small stature and non-scandent habit of *Desmoncus stans*, as well as the production of inflorescences to near ground level, suggest that neoteny may have played an important role in the evolution of this species. Under this scenario, these unusual features would have to be regarded as derived within the genus. Other characteristics (lack of modified distal pinnae, unarmed peduncular bracts, spicate inflorescences, etc.) may be subject to the same considerations.

By virtue of its erect habit, manageable size, relative spinelessness and showy fruits (Fig. 8), *Desmoncus stans* is highly suitable for cultivation as an ornamental; it may well be the only species of its genus in this category.

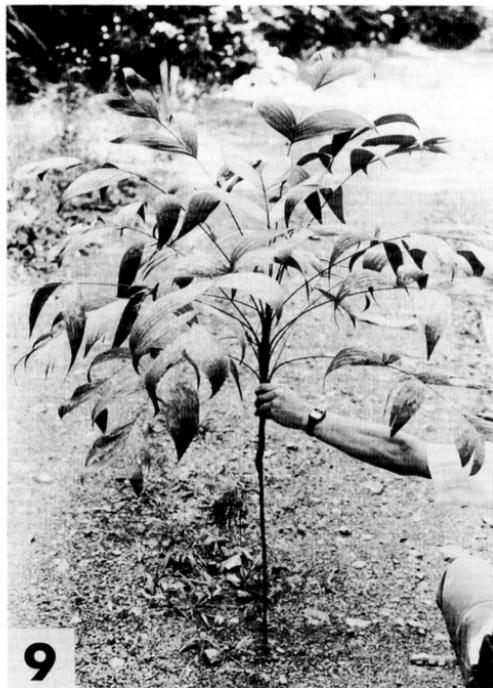
### Geonoma

The following distinctive *Geonoma*, which we first encountered in the Osa in October, 1984, represents an undescribed species which had not been previously collected:

***Geonoma scoparia*** Grayum & de Nevers, sp. nov. TYPE: Costa Rica. Puntarenas: 7 km W of Rincón de Osa, ridge between Río Riyito and Quebrada Bane-gas, 8°41'N, 83°32'W, 200–300 m, *de Nevers et al.* 7757 (holotype, MO; isotypes, CAS, CR). Figures 9, 10.

Caulis solitarius, gracilis, ca. 1.5–3 m altus, usque 0.9 cm diametro; petiolus 21–59 cm longus; lamina semper trijugata, late ovata; rhachis laminae 27.0–31.5 cm longa; pinnae late sigmoideae, 14–26 cm longae, 4.9–9.5 cm latae; prophyllum ca. 6–8 cm longum; bractea pedunculi prophyllum subaequilonga, extus ferrugineo-pannosa; pedunculus ca. 2.3–3.8 cm longus; inflorescentia paniculata, 16–22 cm longa, 21–38 cm lata; rhachillae inflorescentiae tenuissimae, minute exasperatae, ca. 0.5 mm diametro, 8.5–11 cm longae, apice aristatae; foveae florales distantes, quam rhachillae latiores, bilabiatae, intus glabrae, orificio ca. 1.2 mm lato; labium superum foveae angustum obsolescensque, labium inferum vade emarginatum vel acute retusum; flores masculini ca. 2 mm longi; stamina sex, loculus antherarum valde inflexis; flores feminei ca. 1.5 mm longi, tubo staminodiorum apice crenato; fructus maturi nigri, subglobosi, in sicco ca. 5 mm diametro, tessellati.

Stems slender, solitary, ca. 1.5–3.0 m tall, 0.9 cm diam. Leaves consistently trijugate, 19 counted on one plant; petiole (including sheath) 21–59 cm long, channeled adaxially, rounded abaxially; sheath 7–11 cm long ( $\frac{1}{6}$ – $\frac{1}{3}$  total length of petiole); lamina broadly ovate in outline, the pinnae broadly sigmoid, ca. 14–26 × 4.9–9.5 cm (the proximal pair narrowest), the primary ribs ca. 23–27 (6–8 per pinna), diverging from the rachis at an angle of 50–58° on the two distal pairs of pinnae, 73–75° on the proximal pair, prominent and narrowly raised adaxially, convex abaxially; rachis 23.0–31.5 cm long and essentially glabrous. Inflorescences infrafoliar, paniculate, 16–22 cm long, 21–38



9. *Geonoma scoparia* (de Nevers et al. 7757); apical portion of plant, showing trijugate leaves and a single infructescence. 10. *Geonoma scoparia* (de Nevers et al. 7757); closeup of infructescence with fruits. Note three immature inflorescences above, still enclosed in prophylls.

cm wide; prophyll ca. 6–8 cm long at maturity, ca. 1.5–2 cm wide; peduncular bract about equalling the prophyll, thinner, closely brownish-pannose externally; peduncle ca. 2.3–3.8 cm long; rachis 3.5–6.5(–8.0) cm long, usually not well distinguished; lower branches 4–7-branched into very slender rachillae ca. 0.5 mm wide and 8.5–11 cm long; rachillae glabrous but with the axes minutely tuberculate-roughened, reddish at anthesis and especially in fruit, awn-tipped (the awns variously curved or bent, 0.9–1.8 cm long), with distantly separated pits ca. twice as thick as the rachillae; pits bilabiate, the upper lip narrow and obsolescent, the lower lip shallowly emarginate to sharply retuse, the orifice ca. 1.2 mm wide, glabrous within. Staminate flowers (Croat & Grayum 59888) ca. 2 mm long, the petals and sepals subequal; stamens 6, the filaments connate to nearly halfway up; anther loc-

ules strongly inflexed, the sterile base ca.  $\frac{1}{3}$  the total length. Pistillate flowers (Croat & Grayum 59767) ca. 1.5 mm long, the petals slightly exceeding the sepals and staminodial tube (the latter being subequal); staminodial tube crenate. Ripe fruits black, subglobose and ca. 5 mm in diameter when dry, the surface tessellate.

*Additional Specimens Examined.* COSTA RICA. PUNTARENAS: ridge between Quebrada Banegas and Río Riyito, ca. 7 km W of Rincón de Osa, Grayum et al. 4088 (MO); along ridge between Rincón de Osa and Rancho Quemado, ca. 10 km W of main Rincón-Puerto Jiménez road, Croat & Grayum 59767 (MO); along road between Chacarita and Rincón de Osa, 10 km W of Chacarita, Croat & Grayum 59888 (MO).

*Distribution and Phenology.* *Geonoma scoparia* is known only from our four

collections, three of which are from the northeastern corner of the Península de Osa between the valley of Quebrada Bane-gas and the Río Riyito (Laguna Chocuaco). The fourth collection (Croat & Grayum 59888) is from the area at the head of Golfo Dulce, along the new road connecting Rincón de Osa with the Carretera Interamericana at Chacarita.

All collections are from slopes and ridges in primary forest, between 100 and 300 m elevation. *Geonoma scoparia* is not a common species; the plants seem to be few and widely scattered. We have had difficulty finding specimens even during concerted searches in areas where the species is known to occur, and three of our four collections are, as a result, unicates.

Confined as it is to a small and unprotected area, and being rare even within that area, *Geonoma scoparia* is probably the most gravely endangered of the four palm species discussed in this paper.

Flowering collections of *Geonoma scoparia* have been made in March (at the peak of the dry season) and October (at the peak of the rainy season); the single fruiting collection was made in late May.

*Discussion.* *Geonoma scoparia* (Fig. 9), with its delicate and intricately branched, broomlike inflorescences (Fig. 10), does not resemble any other species known from Costa Rica. The new species will key out roughly to *Geonoma deversa* (Poi.) Kunth in the generic monograph of Wessels Boer (1968). It differs markedly from that species, however—most notably, vis-à-vis the aforementioned key, in its non-verticillate floral pits. *Geonoma deversa* (which occurs sympatrically with *G. scoparia*) differs additionally in having the secondary veins immersed above, a longer (5–15 cm) peduncle, thicker (1.5–2.5 mm) inflorescence rachillae and larger (3 mm) male flowers.

*Geonoma gastoniana* Glaziou ex Drude, a Brazilian species, also seems to agree rather well with *G. scoparia*; the inflorescences of the former species are, however,

larger in every respect: the peduncle is about 10 cm long, and the rachillae are much longer (20–25 cm) and thicker (1 mm) than in the new species.

Actually, the new species is probably most closely related to *Geonoma tenuissima* of Ecuador, posthumously described by Harold E. Moore, Jr. (1982) and apparently the last palm species to have been described by that venerable and prolific authority. The inflorescence of the latter species bears a striking resemblance to that of *G. scoparia*; *G. tenuissima* differs, however, in its cespitose habit, simple leaf blades and truncate staminodial tube. Additional, less significant differences include a more clearly defined inflorescence rachis, primary veins depressed or weakly raised above, pits with a prominent upper lip and an entire lower lip, and shorter apical rachillar setae.

Another seemingly close relative of *Geonoma scoparia* is an undescribed central Panamanian mid-elevation species, represented by the following specimens (at MO) determined as "*Geonoma* sp. nov." by H. E. Moore: *Hammel 3459* (Prov. Coclé); and *Nee 11252* (Prov. Veraguas). Although likewise possessing an inflorescence similar to that of *G. scoparia*, this species differs in its cespitose habit, leaf blades divided into many narrow pinnae, and truncate staminodial tube. In addition, it has somewhat longer prophylls and peduncles, and a more definite inflorescence rachis.

*Geonoma scoparia* and the two species just discussed are here assumed to be intimately related, and to form a natural group within *Geonoma*.

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