

Tulcan, Reserva Etnica Awá, Parroquia Chical, Centro Gualpi Medio, 1°02'N, 78°16'W, 900 m, 25 Feb 1993, *C. Aulestia* & *A. Grijalva 1200* (holotype: QCNE; isotypes: AAU, MO). (Fig. 5)

A. Geonoma spinescenti et *G. tenuissima* differt rachillis angulatis, dense lanatis et fructibus apiculatis.

Stems solitary or clustered, 0.5–2 m tall, 0.5–0.9 cm diam., light brown, the internodes 0.7–3.1 cm at apex of stem. Leaves 7–11, simple; sheaths 4–12.1 cm long; petioles 11–27.5 cm long; rachis 10.7–18.7 cm long, 1.2–2.5 mm wide at the base; veins diverging at an angle of 33–46° from the rachis at the base, 36–43° at apex, blade split at apex for 10.2–17 cm. Inflorescences interfoliar at anthesis, branched to one order; prophylls 9.6–10.5 cm long, splitting apically, persistent and tattering; peduncular bracts 7.8 cm long, inserted 1–6.9 cm above the prophyll; peduncles 4.4–15 cm long, 1.2–2.4 mm wide at the first branch; rachillae 2–5, 6–15.5 cm long at base of inflorescence, 1–2.4 mm wide, angular, densely covered with whitish-brown, woolly indument; flower pits spirally arranged; upper and lower lips continuous, forming a slightly raised cupule with irregular splits; staminate flowers 3 mm long; sepals free, imbricate, keeled, 3 mm long; petals connate for ca. half their length, valvate above, 2.4 mm long; stamens 6; filaments united below for 1 mm, free above; thecae free, inflexed, the connective scarcely developed; pistillodes inconspicuous; pistillate flowers 3.2 mm long; sepals free, imbricate, keeled, 3.2 mm long; petals connate for ca. half their length, valvate above, 3 mm long; staminodial tube blunt at the apex; fruits globose, 7–9.5 mm long, 5.4–6.8 mm diam., apiculate, black.

Local names and uses.—*Kerex, palmito, puntero*; no uses recorded.

Distribution and habitat.—Ecuador (Azuay, Bolivar, Carchi, El Oro, Esmeraldas) (Fig. 2D); lowland and montane rainforest on western Andean slopes at 216–1800 m elevation.

Additional specimens examined. ECUADOR. AZUAY: Naranjal-Machala road, 33 km from Machala and 6 km E along Rio Bonito, 3°04'S, 79°45'W, 400 m, 18 Nov 1987,

Skov et al. 64834 (AAU). BOLIVAR: Hacienda Changuil, Agua Clara, 2°06'S, 79°10'W, 450 m, 29 Sep 1995, *Cornejo 4524* (K, NY). CARCHI: Tulcan, Reserva Etnica Awá, Comunidad El Baboso, 1°02'N, 78°16'W, 1600 m, 20 Sep 1991, *Rubio et al. 2184* (AAU); San Marcos de los Coaquienses on trail to Gualpi Bajo, 1°06'N 78°17'W, 1000 m, 7 Feb 1985, *Ollgaard et al. 57518* (AAU); San Marcos de los Coaquienses on trail Chical-Tobar Donoso, 1°06'N, 78°16'W, 800 m, 8 Feb 1985, *Ollgaard et al. 57626* (AAU); Tulcan, Reserva Etnica Awá-Camumbi, 0°53'N 78°16'W, 1700–1900 m, 20–29 Jul 1991, *Quelal et al. 175* (AAU, MO). EL ORO: Sambotambo, along road going north 8 km W of Piñas, km 6, 3°35'S 79°49'W, 1200 m, 19 Dec 1992, *Borchsenius 42* (AAU), 6 Oct 1995, *Borchsenius & Pedersen 334* (AAU, NY). ESMERALDAS: road from Ibarra to Lita, 8–11 km beyond Lita, 0°5'N 78°27'W, 800–900 m, 14–16 May 1986, *Balslev et al. 62099* (AAU); Awá Reserve, between Community of Mataje and Tobar Donoso, 1°15'N, 78°40'W, 216 m, 1 Oct 1993, *Beck et al. 2218* (NY); Community of La Union, 1°00'N, 78°33'W, 380 m, 9 Jul 1994, *Beck et al. 2263* (NY); road from Lita to San Lorenzo, 14 km beyond Lita, 0°52'N 78°28'W, 740 m, 6 Jun 1988, *Bergmann & Laegaard 67236* (AAU); km 39, 0°50'N, 78°35'W, 500 m, 22 May 1993, *Borchsenius & Seeger 94* (AAU); 24 km from Lita, 0°51'N 78°35'W, 840 m, 12 Oct 1987, *Skov & Borchsenius 64741* (AAU); 13–15 km beyond Lita, 0°50'N 78°32'W, 900 m, 13 Oct 1987, *Skov & Borchsenius 64745* (AAU); Reserva Cotacachi-Cayapas, La Aguita, 0°48'N, 78°44'W, 190 m, 26 Jun 1998, *Cornejo & Bonifaz 3809* (AAU); 1 km from Rio Tigre, 0°35'N, 78°56'W, 500 m, 13 Sep 1998, *Cornejo & Bonifaz 6537* (AAU).

Specimens of this species were identified by Skov (1989) as *Geonoma* aff. *pauciflora* Mart., and were considered as a western Andean form of *G. leptospadix* Trail by Borchsenius et al. (1998). *Geonoma lanata* differs from both these species in its angular, densely woolly rachillae and apiculate fruits. It also differs in habitat. *Geonoma pauciflora* occurs at 50–770 m elevation in the Atlantic coastal forest of eastern Brazil, and *G. leptospadix* occurs at 140–850 m elevation in lowland Amazon rainforest.

In preliminary phylogenetic studies (Henderson, in prep.), *Geonoma lanata* appears most closely related to a group of species having narrow rachillae and cupular flower pit lips (*G. spinescens*, *G. tenuissima*, and two undescribed species from the Pacific coast of Colombia). It differs from these in its angular, densely woolly rachillae and apiculate fruits.

***Geonoma skovii* A. J. Hend., Borchsenius & Balslev sp. nov.** Type: Ecuador. Morona-

Santiago: along the Limón-Cuenca road 4 km above Plan de Milagro, 3°04'S, 78°30'W, 1920 m, 19 May 1988, *B. Bergmann & H. Pedersen 62589* (holotype: NY; isotypes: AAU, QCA). (Fig. 6)

A. Geonoma gastoniana et *G. schottiana* differt petioli dense coarctatis brunneo-tomentosis et foveis floralibus spiritaliter et remote dispositis.

Stems solitary, 1.2–4.2 m tall, 1–1.3 cm diam., light brown, the internodes 2.3–5.7 cm at apex of stem. *Leaves* 5–9, irregularly pinnate with multi-veined pinnae; sheaths 19–30 cm long, fibrous; petioles 33.5–98.5 cm long, densely, felty brown tomentose initially; rachis 17–74 cm long, 2.3–5.1 mm wide at the base, tomentose as the petiole; pinnae 3–16 per side of rachis; basal pinna 0.6–2 cm wide at the base, 24–35.5 cm long, diverging at an angle of 61–90° from the rachis; apical pinna 2.7–11.3 cm wide at the base, 12.5–22 cm long, diverging at an angle of 21–33° from the rachis. *Inflorescences* infrafoliar at anthesis, branched to three orders; prophylls 9.5–21 cm long, brown tomentose, longitudinally furrowed, splitting laterally and early deciduous; peduncular bracts 7–14 cm long, inserted 2.6–5.5 cm above the prophyll; peduncles 13–31 cm long, 2–8.5 mm wide at the first branch; rachilla 18–39, 7.5–18.3 cm long at base of inflorescence, 0.8–2.2 mm wide, glabrous or sparsely to densely covered with reddish-brown, branched indument; flower pits spirally and distantly arranged; upper and lower lips continuous, forming a raised cupule, not ciliate on the margins; staminate flowers 2.2 mm long; sepals free, imbricate, keeled, 2.2 mm long; petals connate for ca. half their length, valvate above, 2.2 mm long; stamens 6; filaments united below, free above; thecae free, inflexed, the connective scarcely developed; pistillodes inconspicuous; pistillate flowers 3.8 mm long; sepals free, imbricate, keeled, 3.8 mm long; petals connate for ca. half their length, valvate above, 2.6 mm long; staminodial tube blunt at the apex; *fruits* globose, 6.4–7.2 mm long, 5.5–6.8 mm diam., purple-black.

Local names and uses.—None recorded.

Distribution and habitat.—Ecuador (Morona-Santiago, Zamora-Chinchipec), from near Plan de Milagro and on the Cordilleras Cutucu and Cónдор (Fig. 2D); montane rainforest on eastern Andean slopes at 1700–1920 m elevation. Dr. Rodrigo Bernal (pers. comm.) reports that this species also occurs in southwestern Colombia in Nariño (*González & Ramirez 1651*, at PSO).

Additional specimens examined. ECUADOR. MORONA-SANTIAGO: road from Gualaquiza to General L. Plaza Gutiérrez (Limón), 3 km W of junction between Limón and Indanza, 3°04'S, 78°30'W, 1850 m, 10 Jul 1985, *Balslev & Henderson 60643* (AAU); along the Limón-Cuenca road 4 km above Plan de Milagro, 3°04'S, 78°30'W, 1920 m, 19 May 1988, *Bergmann & Pedersen 62590* (AAU, K, NY); same locality, same date, *Bergmann & Pedersen 62591* (AAU); ridge S and W of Río Itzintza, Cordillera Cutucu, ca. 2°40'S, 78°W, 5000–7000 ft., 17 Nov–5 Dec 1944, *Camp 1391* (NY); Gualaquiza Cantón, Cordillera del Cónдор, Cuangos, 20 km E of Gualaquiza, near disputed Ecuador-Peru border, 3°29'S, 78°14'W, 1470 m, 19 Jul 1993, *Gentry 80171* (MO); near Plan de Milagro, 3°00'S, 78°28'W, 1700 m, 15 Jul 1996, *Stühl & Knudsen 2874* (AAU). ZAMORA-CHINCHIPE: Cordillera del Cónдор, cerca del destacamento militar Cónдор Mirador, en la frontera Ecuador-Peru, 3°38'S, 78°23'W, 1800 m, 15 Dec 2000, *Montenegro 54* (MO); El Pangui, Cordillera del Cónдор, above headwaters of Río Wawaime, 3°35'S, 78°25'W, 1640 m, 8 Dec 2005, *Neill & Quizpe 15026* (MO).

Specimens of this species were identified by Skov (1989) as *Geonoma gastoniana* Glaz. This occurs at low elevations in the Atlantic coastal forest of eastern Brazil, and its presence in Ecuador was doubted by Borchsenius et al. (1998). These authors considered the species more similar to *G. leptospadix*, from the Amazon region. *Geonoma skovii* differs from *G. leptospadix* in its larger, pinnate leaves, larger, more branched inflorescences, and inconspicuous pistillodes (vs. the well-developed, 1 mm long pistillodes found in *G. leptospadix*). There is some detectable variation within *G. skovii* - specimens from the Cordilleras Cutucu and Cónдор have more pinnae per side of the rachis and glabrous rachillae.

In preliminary phylogenetic studies (Henderson, in prep.), *Geonoma skovii* appears most closely related to a group of species having narrow rachillae and cupular flower pit lips (including *G. lanata* and two unde-

scribed species from the Pacific coast of Colombia). It differs from these in its densely felty, brown tomentose petioles, pinnate leaves, and larger, more branched inflorescences with distantly arranged flower pits.

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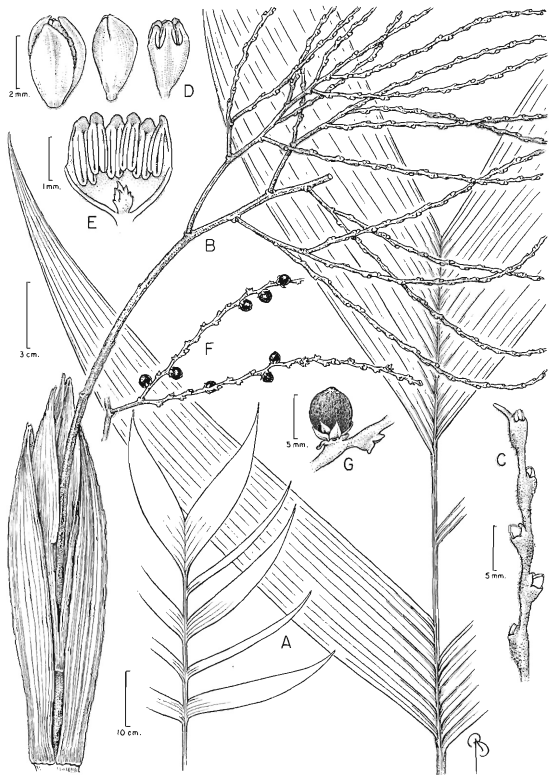


FIG. 6. *Geonoma skovii*. A. Outline of leaf and detail of lamina. B. Inflorescence. C. Section of rachilla. D. Staminate flowers, with sepals and petals (left), petals (middle), and stamens (right). E. Internal view of staminate flower. F. Section of rachillae with fruits. G. Fruit. (A from Bergmann 62589, B-E from Bergmann 62590, F from Gentry 80171.)