

Stem branching pattern and height unknown, 3.5 cm diam., plants 2–4 m tall. *Leaves* 12–21, simple or with one division; sheaths 23 cm long; petioles 26 cm long; rachis 81–111 cm long, 5.2–7.1 mm wide at the base; pinnae 1 or 2, drying dark brown, the veins raised adaxially; veins diverging at an angle of 24–36° from the rachis; apical divisions 21.7–39.5 cm long, diverging at an angle of 23–30° from the rachis. *Inflorescences* interfoliar at anthesis, branched; prophylls and peduncular bracts not seen, the peduncular bracts inserted 2.2 cm above the prophyll; peduncles 55 cm long, 4.3–7.2 mm wide at the apex; rachillae 2–4, 16.5–20.5 cm long, 5.8–6.7 mm wide, covered with woolly, brown indument; flower pits spirally arranged; lower lips well-developed, with a central split, briefly overlapping the upper lip; upper lips well-developed; staminate flowers 4 mm long; sepals free, imbricate, keeled, 3.5–4 mm long; petals connate for ca. one third their length, valvate above, 3.6–4 mm long; stamens 6; filaments briefly united below, free above; thecae inflexed on a short connective; pistillodes obscure or absent; pistillate flowers 3 mm long; sepals free, imbricate, keeled, 3 mm long; petals connate for ca. one third their length, valvate above, 3 mm long; staminodial tube digitately lobed at the apex; *fruits* globose, 17.4–24.9 mm long, 15.4–17.8 mm diam., black, with a rough surface, splitting when mature.

Local names and uses.—*Santipava*; the leaves are used for thatching.

Distribution and habitat.—Ecuador, known only from extreme northwestern Ecuador (Esmeraldas) (Fig. 2A); in lowland rainforest on western Andean slopes at 200–500 m elevation. Dr. Rodrigo Bernal (pers. comm.) reports that this species also occurs in southwestern Colombia in Nariño (*Ramírez et al. 8263, Ramírez 9604*, both at PSO).

Additional specimens examined. ECUADOR. ESMERALDAS: San Lorenzo, Reserva Etnica Awá, Parroquia Ricaurte, Centro Pambilar, 1°08'N, 78°33'W, 200 m, 21 Sep 1992, *Aulestia et al. 322* (MO), 1°08'N, 78°36'W, 500 m, 11 Jan 1993, *Aulestia & Aulestia 1005* (AAU, MO), Mataje community, 1°15'N, 78°40'W, 200 m, 20 Jan 1993, *Beck et al. 1769* (NY), *Beck et al. 1769a* (NY), La Union community, 1°00'N, 78°33'W, 340 m, 9 Jul

1994, *Beck et al. 2271* (NY), Cañon del Rio Mira, 10 km al oeste de Alto Tambo, 1°02'N, 78°26'W, 250 m, 16–26 Mar 1991, *Rubio et al. 1258* (AAU, MO), San Francisco, Recinto Durang, 1°02'N, 78°36'W, 300 m, 16 Oct 1999, *Vilenzuela & Freire 407* (MO); Reserva Cotacachi-Cayapas, La Aguita, 0°48'N, 78°44'W, 200 m, 25 Jun 1998, *Cornejo & Bonifaz 6359* (AAU).

No specimens of this species were collected until 1993, and it was unknown to Skov (1989). The single specimen cited by Borchsenius et al. (1998) was determined as *Geonoma congesta* H. Wendl. ex Spruce. This, and some other specimens determined as *G. congesta*, rightfully belong to *G. calyptrogynoides* Burret, a name previously synonymized with *G. congesta* by Henderson et al. (1995). *Geonoma awaensis* occurs sympatrically with *G. calyptrogynoides*, but differs in its leaves drying dark brown (vs. light green), digitately lobed (vs. crenulate) staminodial tubes, and larger fruits (17.4–20.5 mm × 15.4–17.8 mm vs. 12–13.4 mm × 8.3–10.5 mm).

In preliminary phylogenetic studies based on morphological data (Henderson, in prep.), *Geonoma awaensis* appears most closely related to *G. chocoicola* Wess. Boer. Both species have leaves which dry a dark brown color; erect, long pedunculate spicate or digitate inflorescences; digitately lobed staminodial tubes; and rough fruits that split at maturity. *Geonoma awaensis* differs from *G. chocoicola* in its branched (vs. spicate) inflorescence and shorter, thinner rachillae (16.5–20.5 cm × 5.8–7.1 mm vs. 22–40 × 8.6–15.2 mm). The ranges of the two species do not overlap (Fig. 2A).

Geonoma ecuadoriensis A. J. Hend., Borchsenius & Balslev, *sp. nov.* Type: Ecuador. Napo: carretera Hollin-Loreto-Coca, km 40, entre Rio Guamani y Rio Pucuno, 0° 40'S 77°38'W, 1200 m, 11 Dec 1987, D. Neill, W. Palacios & C. Cerón 8073 (holotype: NY; isotypes: AAU, MO). (Fig. 3)

A *Geonoma paradoxa* differt foliis pinnatis non simplicibus, pinnis basalibus ad angulum latius divergentibus atque bracteis peduncularibus quam prophyllis longioribus non brevioribus.

Stems solitary, 0.1 m tall, 2.5 cm diam., light brown, the internodes not seen. *Leaves* irregularly pinnate with multi-veined pinnae;

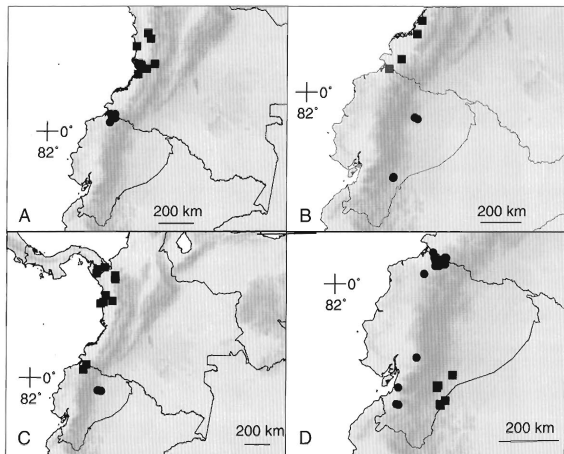


FIG. 2. Maps of Ecuador. A. *Geonoma awaensis* (circles) and *G. chococola* (squares). B. *Geonoma ecuadoriensis* (circles) and *G. paradoxa* (squares). C. *Geonoma hollinensis* (circles) and *G. triandra* (squares). D. *Geonoma lanata* (circles) and *G. skovii* (squares).

sheaths and petioles not seen; rachis 13–27 cm long, 1.5–2.4 mm wide at the base; pinnae 3–5 on each side of rachis; basal pinna 1–9 cm wide at the base, 11.5–17 cm long, diverging at an angle of 40–53° from the rachis; apical pinna 3–7.4 cm wide at the base, 9.2–13 cm long, diverging at an angle of 35–45° from the rachis. *Inflorescences* interfoliar at anthesis, unbranched; prophylls 12.3 cm long, splitting apically, persistent; peduncular bracts 18.4 cm long, inserted 0.8 cm above the prophyll; peduncles 60 cm long, 1.4–1.8 mm wide at the apex; rachilla 1, 5–9.2 cm long, 3.8–4.6 mm wide, sparsely covered with whitish-brown, woolly indument, becoming orange in fruit, with an apical, sterile section; flower pits spirally and closely arranged; lower lips with a central

split, not or scarcely ciliate; upper lips low; staminate flowers 3 mm long; sepals free, imbricate, keeled, 2.8 mm long, ciliate; petals connate for ca. half their length, valvate above, 2.8 mm long, ciliate; stamens 6; filaments united below for 1 mm, free above; thecae free, inflexed, the connective scarcely developed; pistillodes inconspicuous; pistillate flowers 2.5 mm long; sepals free, imbricate, keeled, 2.4 mm long, ciliate; petals free, valvate, 2 mm long, ciliate; staminodial tube digitately lobed; mature fruits not seen.

Local names and uses.—*Uchsa panga*; no uses recorded.

Distribution and habitat.—Ecuador (Morona-Santiago, Napo) (Fig. 2B); montane rainforest on eastern Andean slopes, at 900–1800 m elevation.

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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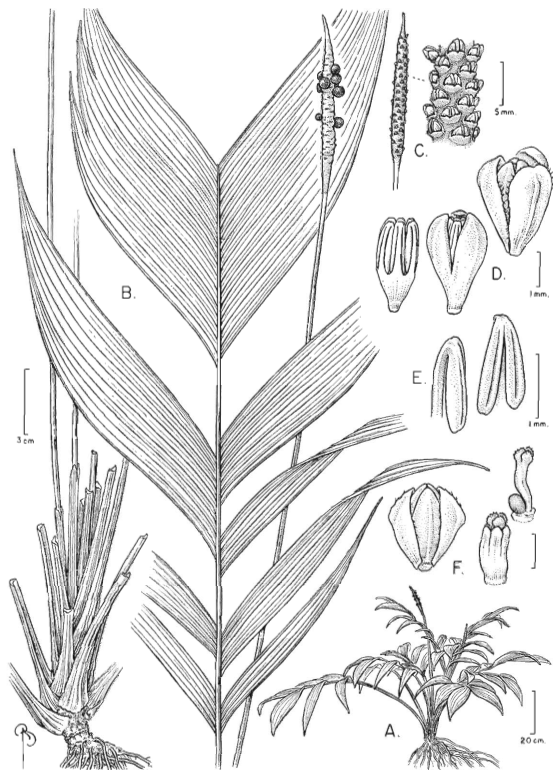


FIG. 3. *Geonoma ecuadoriensis*. A. Habit. B. Leaf, leaf bases, and inflorescence. C. Rachilla with detail of flower pits. D. Staminate flowers, with stamens (left), petals (middle), and sepals and petals (right). E. Detail of stamens in ventral and lateral view. F. Pistillate flowers, with sepals and petals (left), staminodial tube (middle), and gynoecium (right). (A-E from Borchsenius 172, F from Neill et al. 8073.)