

- ezuela (Península de Paría), Trinidad and Tobago, and Haiti ..... 5
- 5 Rachillae 18.7(12.2–24.0) cm long; Lesser Antilles (Guadeloupe, Dominica, Martinique, and St. Lucia) ..... subsp. *martinicensis*
- Rachillae 12.3(7.0–18.9) cm long; Central America, Colombia (Sierra Nevada de Santa Marta), Venezuela (Península de Paría), Trinidad and Tobago, and Haiti ..... 6
- 6 Peduncular bracts inserted 1.5(0.7–2.5) cm above the prophylls; Venezuela (Península de Paría), Trinidad and Tobago ..... subsp. *vaga*
- Peduncular bracts inserted 3.8(1.8–7.4) cm above the prophylls; Central America, Central America, Colombia (Sierra Nevada de Santa Marta), and Haiti ..... 7
- 7 Peduncles 4.0(2.8–5.6) mm in diameter; Colombia (Sierra Nevada de Santa Marta) ..... subsp. *platybothros*
- Peduncles 7.0(3.8–10.7) mm in diameter; Central America (Mexico, Guatemala, Belize, Honduras, Nicaragua, Costa Rica, western Panama) and Haiti ..... 8
- 8 Peduncles 28.4(19.0–37.0) cm long; Central America (Mexico, Guatemala, Belize, Honduras, Nicaragua, Costa Rica, and western Panama) ..... subsp. *mexicana*
- Peduncles 22.8(19.0–26.5) cm long; Haiti ..... subsp. *oxycarpa*

#### 49a. *Geonoma pinnatifrons* subsp. *pinnatifrons*

*Geonoma pulchra* Engel (1865: 686). Type: COLOMBIA. Norte de Santander: Ocaña, 2000–3000 m, August 1859, *F Engel s. n.* (holotype B, destroyed, isotype LE!).

*Leaf* pinnae 11(3–39) per side of rachis. *Inflorescences* peduncular bracts inserted 2.8(0.6–6.5) cm above the prophyll; peduncles 25.2(11.0–41.0) cm long, 7.5(3.6–12.9) mm in diameter; rachillae 15.2(8.6–25.7) cm long, 2.2(1.1–3.4) mm in diameter *fruits* 5.0(3.6–6.3) mm in diameter.

**Distribution and habitat:**—From 2°43'S–11°10'N and 63°25'–78°12'W in Venezuela, Colombia, and Ecuador, and just reaching eastern Panama, at 898(30–1900) m elevation in lowland to montane rainforest (Fig. 31).

There is geographical variation in this subspecies. Regression shows there are significant ( $P < 0.05$ ) associations between elevation and three leaf and three inflorescence variables. Squared multiple R for the regression of petioles on elevation is 0.57, basal pinna length 0.27, basal pinna width 0.28, prophyll length 0.39, rachilla length 0.27, and fruit length 0.23. Petioles become shorter, basal pinna shorter and narrower, prophyll and rachillae shorter, and fruits longer with increasing elevation.

Clustered-stemmed plants occur commonly in this subspecies in Venezuela, and these occur at a higher mean elevation (1170 m) than those with solitary stems (677 m).

#### 49b. *Geonoma pinnatifrons* subsp. *binervia* (Orsted) Henderson, *comb. & stat. nov.*

Basionym: *Geonoma binervia* Orsted (1859: 33). Type: NICARAGUA. Río San Juan: Río San Juan, 1845–1848, *A. Orsted 6564* (holotype C!).

*Leaf* pinnae 12(3–19) per side of rachis. *Inflorescences* peduncular bracts inserted 2.5(0.9–4.7) cm above the prophyll; peduncles 18.0(10.0–38.0) cm long, 13.0(9.3–20.2) mm in diameter; rachillae 15.7(8.7–28.3) cm long, 2.3(1.7–3.4) mm in diameter; *fruits* 4.3(3.7–5.1) mm in diameter.

**Distribution and habitat:**—From 7°19'–16°04'N and 77°05'–90°15'W in eastern Panama and adjacent Colombia with outliers in western Panama, Costa Rica, Nicaragua, and Guatemala at 282(4–725) m elevation in lowland rainforest (Fig. 31).

There is one doubtful specimen (*Cook 5808*), missing leaves, from the Nicoya Peninsula of Costa Rica that is included here.

#### 49c. *Geonoma pinnatifrons* subsp. *martinicensis* (Martius) Henderson, *comb. & stat. nov.*

Basionym: *Geonoma martinicensis* Martius (1843: 28). Type: MARTINIQUE. “Palma humilis, cocifera, latifolia, major, Plum., t. LIX, LX, LXI” (holotype P, *n.v.*).

*Geonoma dominicana* Bailey (1939: 232). Type: Dominica. Mome Cola Anglais, 610–732 m, 10–23 August 1938, *W. Hodge 307* (holotype, BH! isotypes, GH! NY!).

Leaf pinnae 7(4–9) per side of rachis. *Inflorescences* peduncular bracts inserted 1.9(1.0–3.0) cm above the prophyll; peduncles 25.5(16.5–39.0) cm long, 8.0(3.7–11.8) mm in diameter; rachillae 18.4(12.2–24.0) cm long, 2.5(1.9–3.8) mm in diameter; *fruits* 5.2(4.8–5.9) mm in diameter.

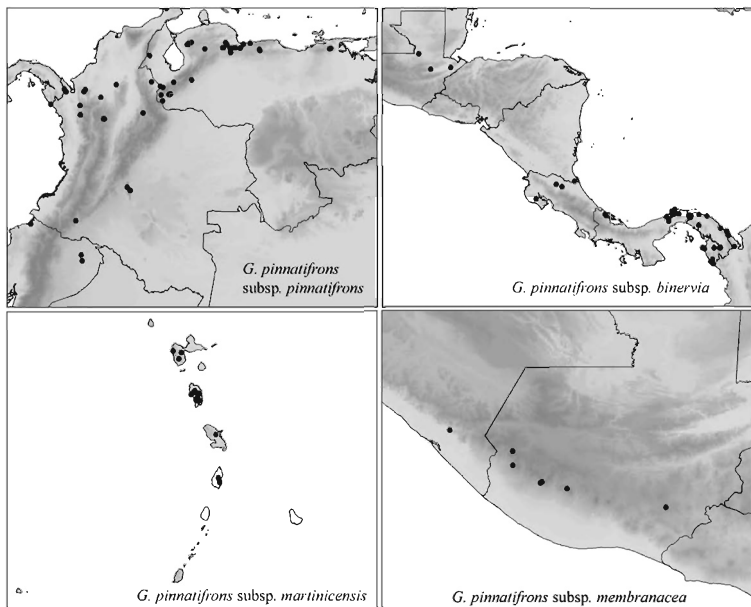
**Distribution and habitat:**—From 12°27'–16°13'N and 60°56'–61°46'W in the Lesser Antilles (Guadeloupe, Dominica, Martinique, and St. Lucia) at 674(200–1000) m elevation in lowland to montane rainforest (Fig. 31). Read (1979) also included St. Vincent in the distribution of this taxon, but no specimens from there have been seen.

**49d. *Geonoma pinnatifrons* subsp. *membranacea* (Wendland ex Spruce) Henderson, comb. & stat. nov.**

Basionym: *Geonoma membranacea* Wendland ex Spruce (1871: 106). Type: GUATEMALA. Escuintla: Volcan de Fuego, between San Pedro and Hacienda de Sapota, January 1857, *H. Wendland 7 & 8* (holotype K!).

Leaf pinnae 6(3–8) per side of rachis. *Inflorescences* peduncular bracts inserted 1.4(0.9–2.0) cm above the prophyll; peduncles 16.5(13.6–18.8) cm long, 4.1(2.4–5.8) mm in diameter; rachillae 15.4(10.2–22.5) cm long, 1.9(1.4–2.4) mm in diameter; *fruits* 6.3(5.2–7.0) mm in diameter.

**Distribution and habitat:**—From 14°25'–15°19'N and 90°03'–92°37'W on slopes of volcanoes on the Pacific coast of Mexico and Guatemala at 1235(700–1650) m elevation in lowland to montane rainforest (Fig. 31).



**FIGURE 31.** Distribution maps of *Geonoma pinnatifrons* subsp. *pinnatifrons*, *G. pinnatifrons* subsp. *binervia*, *G. pinnatifrons* subsp. *martinicensis*, and *G. pinnatifrons* subsp. *membranacea*.