

Key to the subspecies of *G. congesta*

- 1 Rachillae 11.9(6.0–21.5) cm long; Honduras, Nicaragua, Costa Rica (excluding Osa Peninsula and adjacent areas), and western and central Panamasubsp. *congesta*
 - Rachillae 19.1(15.0–23.0) cm long; Osa Peninsula and adjacent areas on the Pacific slope in Costa Rica subsp. *osensis*

13a. *Geonoma congesta* subsp. *congesta*

Inflorescences rachillae 11.9(6.0–21.5) cm long.

Distribution and habitat:—From 8°30'–15°42'N and 79°45'–85°34'W in Central America in Honduras, Nicaragua, Costa Rica, and western and central Panama as far east as the Canal Zone at 255(25–1000) m elevation in lowland tropical rainforest (Fig. 13).

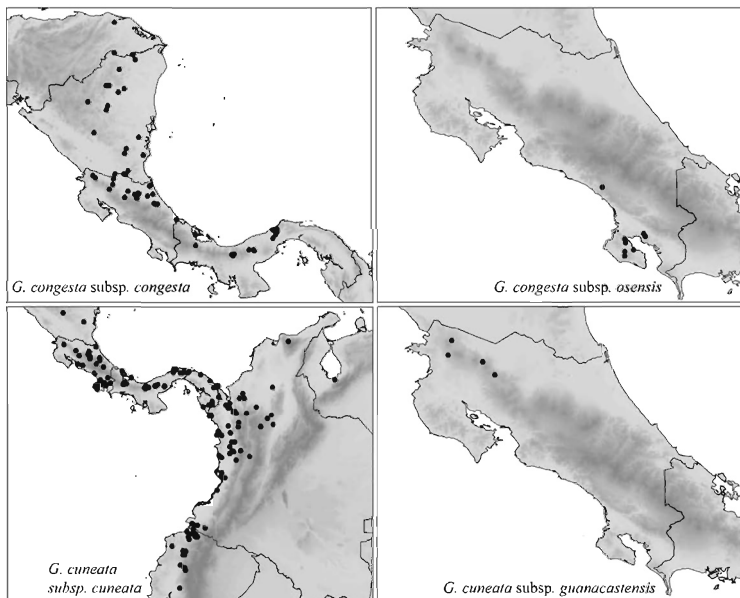


FIGURE 13. Distribution maps of *Geonoma congesta* subsp. *congesta*, *G. congesta* subsp. *osensis*, *G. cuneata* subsp. *cuneata*, *G. cuneata* subsp. *guanacastensis*.

13b. *Geonoma congesta* subsp. *osensis* Henderson, *subsp. nov.* (Appendix IV, Plates 10–15)

A *Geonoma congesta* subsp. *congesta* rachillis longioribus differt.

Type: COSTA RICA. Puntarenas: Esquinas Forest Preserve between Palmar Sur and Golfito on United Fruit Company railroad, 9 March 1953, *H. Moore 6534* (holotype NY!, isotype BH!).

Inflorescences rachillae 19.1(15.0–23.0) cm long.

Distribution and habitat:—From 8°31'–9°17'N and 83°17'–83°46'W in the Osa Peninsula and adjacent areas on the Pacific slope in Costa Rica at 263(97–700) m elevation in lowland tropical rainforest (Fig. 13).

14. *Geonoma cuneata* Wendland ex Spruce (1871: 104). Type: COSTA RICA. Heredia: Sarapiquí, 1857, *H. Wendland s.n.* (holotype K!).

Plants 1.4(0.3–2.5) m tall; stems 0.7(0.1–3.0) m tall, 1.5(0.4–3.4) cm in diameter, solitary or clustered, not cane-like or cane-like; internodes 0.9(0.2–2.2) cm long, yellowish and smooth, or, if short and congested, not scaly. *Leaves* 10(4–17) per stem, undivided or irregularly pinnate, not plicate, bases of blades running diagonally into the rachis; sheaths 20.0(9.0–51.0) cm long; petioles 30.7(0.2–113.5) cm long, drying orange-brown, reddish-brown, or green or yellowish; rachis 46.4(12.0–250.0) cm long, 4.1(1.3–9.0) mm in diameter; veins raised and rectangular in cross-section adaxially or not raised or slightly raised and triangular in cross-section adaxially; pinnae 3(1–35) per side of rachis; basal pinna 32.7(12.5–68.0) cm long, 5.8(0.3–21.5) cm wide, forming an angle of 31(3–95)° with the rachis; apical pinna 22.9(8.5–44.0) cm long, 10.7(1.5–37.0) cm wide, forming an angle of 31(10–50)° with the rachis. *Inflorescences* unbranched; prophylls and peduncular bracts ribbed with elongate, unbranched fibers, both bracts tubular, narrow, elongate, closely sheathing the peduncle, more or less persistent; prophylls 16.5(4.0–38.0) cm long, not short and asymmetrically apiculate, the surfaces not ridged, without unequally wide ridges; peduncular bracts 32.6(16.5–67.0) cm long, well-developed, inserted 1.4(0.4–5.7) cm above the prophyll; peduncles 51.3(13.7–117.0) cm long, 3.0(1.1–8.2) mm in diameter; rachillae 1, 20.4(5.5–52.0) cm long, 5.4(1.9–10.5) mm in diameter, the surfaces without spiky, fibrous projections or ridges, drying brown or yellow-brown, without short, transverse ridges, not filiform and not narrowed between the flower pits; flower pits spirally arranged, glabrous internally; proximal lips pits with a central notch before anthesis, often the two sides of the notch overlapping, recurved after anthesis, not hood-shaped; proximal and distal lips drying the same color as the rachillae, not joined to form a raised cupule, the proximal lip margins overlapping the distal lip margins; distal lips well-developed; staminate and pistillate petals not emergent, not valvate throughout; staminate flowers persistent or deciduous after anthesis; stamens 6; thecae diverging at anthesis, inserted almost directly onto the filament apices, the connectives bifid but scarcely developed; anthers short and curled over at anthesis; non-fertilized pistillate flowers persistent or deciduous after anthesis; staminodial tubes crenulate or shallowly lobed at the apex, those of non-fertilized flowers not projecting and persistent after anthesis; *fruits* 7.6(5.0–11.6) mm long, 5.4(4.4–6.5) mm in diameter, the bases without a prominent stipe, the apices not conical, the surfaces not splitting at maturity, without fibers emerging, ridged from the numerous, subepidermal, meridional, elongate fibers present, these coming to a point at fruit apices; locular epidermis without operculum, smooth or sculpted and then usually also with a raised, meridional ridge, without pores.

Taxonomic notes:—*Geonoma cuneata* is a member of the *G. cuneata* clade, along with *G. brenesii*, *G. epetiolata*, *G. hugonis*, and *G. monospatha*, from which it differs in its crenulate or shallowly lobed staminodial tubes. *Geonoma cuneata* is very variable; in fact it is the fourth most variable species in the genus. Borchsenius (1999) studied variation within *G. cuneata* in western Ecuador using morphometric methods and data taken from living plants. At a local scale he found that four different varieties (based on Henderson *et al.*, 1995) of *G. cuneata* could be distinguished. However, when he included plants from other sites in western Ecuador in the analysis, differences between the varieties broke down. Borchsenius concluded that the varietal classification of Henderson *et al.* was not applicable in western Ecuador, much less throughout the whole range of the species. Borchsenius' study is of interest because of its quantitative approach. However, he used only quantitative variables and not qualitative traits. Of the four varieties recognized by Borchsenius—var. *cuneata* (here as *ecuador* morphotype), var. *gracilis* (here as *esmeraldas* morphotype), var. *procumbens* (here as *multipinnate* morphotype), and var. *sodiroi* (here as subsp. *sodiroi*)—one, the last, can be recognized as a subspecies based on both quantitative variables and qualitative traits. In