

Distribution and habitat:—From 18°01'–23°13'S and 39°48'–44°57'W in the Atlantic Coastal Forest of Brazil in Espírito Santo, Minas Gerais, Rio de Janeiro, and São Paulo at 251(50–650) m elevation in lowland rainforest (Fig. 34).

51g. *Geonoma pohlliana* subsp. *rubescens* (Wendland ex Drude) Henderson, comb. & stat. nov.

Basionym: *Geonoma rubescens* Wendland ex Drude (1882: 491). Type: BRAZIL. Bahia: Ilhéus, no date, *J. Blanchet s.n.* (holotype BR!, isotype P!).

Geonoma platycaula Drude & Triel in Drude (1882: 490). Type: BRAZIL. Bahia: without locality, no date, *C. Martius s.n.* (holotype M!).

Leaves pinnae 4(3–7) per side of rachis. *Inflorescences* rachillae 4(2–6), 5.1(3.8–6.5) mm in diameter, not hairy, not filiform and not narrowed between the flower pits; proximal and distal lips drying the same color as the rachillae; triads mostly spirally arranged.

Distribution and habitat:—From 14°09'–15°18'S and 39°00'–39°16'W in the Atlantic Coastal Forest of Brazil in central Bahia at 212(45–380) m elevation in lowland tropical rainforest (Fig. 35).

Labels of some specimens (e.g., *Carvalho 6775*, *Noblick 4726*) describe the stems, leaves, and inflorescences as reddish-tinged. Some specimens (e.g., *Fiaschi 1051*), sympatric with subsp. *unaensis*, exactly resemble that subspecies except for the non-hairy rachillae. The differences between the two subspecies are not clear.

51h. *Geonoma pohlliana* subsp. *trinervis* (Drude & Wendland) Henderson, comb. & stat. nov.

Basionym: *Geonoma trinervis* Drude & Wendland in Drude (1882: 492). Type: BRAZIL. Rio de Janeiro: Serra dos Orgãos, May 1832, *L. Riedel 734* (holotype BR!, isotypes F!, K!, M!, P!).

Leaves pinnae 15(13–19) per side of rachis. *Inflorescences* rachillae 3(2–3), 4.7(4.1–5.3) mm in diameter, not hairy, not filiform and not narrowed between the flower pits; proximal and distal lips drying the same color as the rachillae; triads mostly spirally arranged.

Distribution and habitat:—From 21°50'–23°00'S and 41°40'–44°18'W in the Atlantic Coastal Forest of Brazil in the Serra do Mar in Rio de Janeiro at medium elevations in lowland rainforest (Fig. 35).

51i. *Geonoma pohlliana* subsp. *unaensis* Henderson, subsp. nov. (Appendix IV, Plate 56)

A subspectebus aliis pinnis in quoque latere 4(2–7) atque rachillis 2(2–3) crebre pilosis differt.

Type: BRAZIL. Bahia: Mun. Una, Reserva Biológico do Mico-leão, entrada no km 46 da Rod. BA-001 Ilhéus-Una, 15°09'S, 39°05'W, 8–12 March 1993, *A. Amorim, S. Sant'Ana, J. Jardim, E. Santos & J. Hage 1119* (holotype NY!, isotype CEPEC *n.v.*).

Leaves pinnae 3(3–4) per side of rachis. *Inflorescences* rachillae 2(2–3), 6.3(5.5–6.8) mm in diameter, densely hairy, not filiform and not narrowed between the flower pits; proximal and distal lips drying the same color as the rachillae; triads mostly spirally arranged.

Distribution and habitat:—From 15°07'–15°09'S and 39°05'–39°10'W in the Atlantic Coastal Forest of Brazil near Una, Bahia at low elevations in lowland rainforest (Fig. 35).

51j. *Geonoma pohlliana* subsp. *weddelliana* (Wendland ex Drude) Henderson, comb. & stat. nov.

Basionym: *Geonoma weddelliana* Wendland ex Drude (1882: 494). Type: BRAZIL. Goiás: between Goiás and Cuiabá, November–December 1844, *H. Weddell 2983* (holotype P!, isotype F!).

Geonoma schottiana var. *palustris* Warming ex Drude (1882: 493). *Geonoma warmingii* Hawkes (1952: 189). Type: BRAZIL. Minas Gerais: Lagoa Santa, no date, *E. Warming 1843* (holotype *C. n.v.*, holotype image!).

Geonoma stenochista Burret (1930a: 233). Type: BRAZIL. Minas Gerais: between Rio Parauna and Serra do Cipó, 24 April 1892, *A. Glaziou 20030* (holotype P!, isotype F!).

Geonoma caudulata Loesener in Taubert (1896: 423). Type: BRAZIL. Goiás: Serra dos Viadeiros, 17 October 1894, E. Ule 226 (3150) (holotype P!).

Geonoma plurinervia Burret (1940b: 99). Type: BRAZIL. Mato Grosso: Capão Bonito, Campo Grande, 5 September 1936, W. Archer & A. Gehrt 74 (holotype B, destroyed, isotypes BH!, SP!, US!).

Geonoma telesana Lorenzi (2010: 252). Type: BRAZIL. Mato Grosso: Mun. Matinha, Serra do Roncador, 11 December 2009, H. Lorenzi, J. Teles, K. Soares & T. Flores 6789 (holotype HPL *n.v.*, isotypes ESA *n.v.*, SP *n.v.*), **synon. nov.**

Leaves pinnae 13(3–23) per side of rachis. *Inflorescences* rachillae 13(4–27), 2.0(1.0–3.4) mm in diameter, not hairy, not filiform and not or scarcely narrowed between the flower pits; proximal and distal lips drying darker brown than the rachillae; triads mostly decussately arranged.

Distribution and habitat:—From 6°00'–24°07'S and 36°00'–60°49'W in the Cerrado region and adjacent areas of campo rupestre of Brazil and just reaching adjacent Bolivia and Paraguay at 1015(200–1650) m elevation in wet places, usually in gallery forest (Fig. 35).

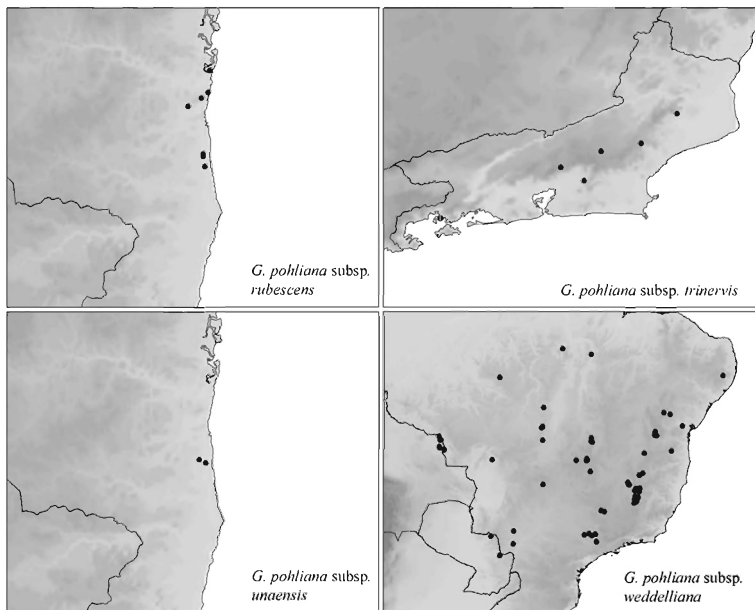


FIGURE 35. Distribution maps of *Geonoma pohlliana* subsp. *rubescens*, *G. pohlliana* subsp. *trinervis*, *G. pohlliana* subsp. *unanensis*, and *G. pohlliana* subsp. *weddelliana*.

There is geographical variation in this subspecies. Linear regression shows there are significant associations between elevation and eight leaf variables and four inflorescence variables. Squared multiple *R* for the regression of leaf number on elevation is 0.58, rachis width 0.10, number of pinnae 0.28, basal pinna length 0.18, basal pinna width 0.40, basal pinna angle 0.37, apical pinna width 0.31, apical pinna angle 0.19,

peduncle width 0.15, number of rachillae 0.12, fruit length 0.33, and fruit diameter 0.45. In particular, number of pinnae increases and they become shorter and narrower with narrower angles with increasing elevation, giving a distinctive, small pinnate leaf. For inflorescences, peduncles become thinner, rachillae fewer, and fruits larger with increasing elevation. Specimens from higher elevations (1000–1600 m) in Minas Gerais (Serra do Cipó), Goiás (Chapada dos Veadeiros), and Bahia (Pico das Almas) have these kinds of leaves and inflorescences.

Specimens from the western and northern margins of the range have fewer, broader pinnae. Some specimens (e.g., *Noblick 3209*, *Sant'Ana 311*, *Thomas 9251*) from the eastern margin of the range in Bahia occur near to the range of subsp. *pohliana*, and there may be hybrids between these two subspecies in this area.

Some specimens (*Irwin 6276*, *15633*) from the Distrito Federal near Brasília, have pinnae more like those of subsp. *schottiana*. It is unclear if this subspecies is present in the Distrito Federal, or if these specimens are hybrids.

51k. *Geonoma pohliana* subsp. *wittigiana* (Glaziou ex Drude) Henderson, comb. & stat. nov.

Basionym: *Geonoma wittigiana* Glaziou ex Drude (1882: 499). Type: BRAZIL. Rio de Janeiro: Serra dos Orgãos, 23 August 1872. *A. Glaziou 6458* (holotype P!, isotypes C n.v., FI!, K!).

Leaves pinnae 4(3–6) per side of rachis. *Inflorescences* rachillae 7(3–10)1.8(1.2–2.6) mm in diameter, hairy, not filiform and not or scarcely narrowed between the flower pits; proximal and distal lips drying the same color as the rachillae; triads mostly spirally arranged.

Distribution and habitat:—From 20°04'–23°19'S and 40°43'–44°36'W in the Atlantic Coastal Forest region of Brazil in Espírito Santo, Minas Gerais, and Rio de Janeiro at 955(175–1265) m elevation in lowland or montane rainforest (Fig. 36).

Most specimens are from the Serra do Mar in Rio de Janeiro. The outliers from Minas Gerais and Espírito Santo appear somewhat different but there are too few specimens to test for differences.

52. *Geonoma poiteauana* Kunth (1841: 233). *Gynestum acaule* Poiteau (1822: 391). *Geonoma poiteana* Martius (1843: 39). *Geonoma acaulis* (Poiteau) Burret (1930a: 162). *Geonoma macrostachys* var. *poiteauana* (Kunth) Henderson (1995: 277). Type: FRENCH GUIANA. Without locality, no date, *A. Poiteau s.n.* (holotype P!).

Geonoma dammeri Huber (1902: 409). *Taenianthera dammeri* (Huber) Burret (1930c: 13). Type: BRAZIL. Pará: Furo Macujubim, 6 October 1901, *M. Guedes 2241* (holotype MG!).

Geonoma chaenostachys Burret (1931c: 318). Type: VENEZUELA. Amazonas: Mount Duida, ca. 250 m, 18 November 1928, *G. Tate 394* (holotype NY!).

Plants 1.2(0.5–2.0) m tall; stems 0.1 m tall, 2.1 cm in diameter, branching no data, not cane-like; internodes 0.2 cm long, not scaly. *Leaves* undivided or irregularly pinnate, not plicate, bases of blades running diagonally into the rachis; sheaths 13.7(12.0–17.0) cm long; petioles 21.6(18.0–26.7) cm long, drying green or yellowish; rachis 57.0(38.0–79.5) cm long, 4.2(3.1–5.9) mm in diameter; adaxial veins not raised or slightly raised and triangular in cross-section adaxially; pinnae 2(1–3) per side of rachis; basal pinna 51.8(42.0–64.0) cm long, 16.6(9.0–26.0) cm wide, forming an angle of 11(5–22)° with the rachis; apical pinna 33.4(30.0–38.0) cm long, 16.9(9.5–31.5) cm wide, forming an angle of 18(10–24)° 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 10.4(6.0–13.2) cm long, not short and asymmetrically apiculate, the surfaces not ridged, without unequally wide ridges; peduncular bracts 23.4(19.0–28.35) cm long, well-developed, inserted 0.9(0.5–2.0) cm above the prophyll; peduncles 80.2(54.5–119.5) cm long, 2.9(1.3–3.7) mm in diameter; rachillae 1, 13.2(8.5–20.0) cm long, 4.8(3.1–6.0) 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