

- 3 Rachillae 5(4–9); Rio de Janeiro, Serra do Mar subsp. *kuhlmannii*
 - Rachillae 12(3–32); widespread 4
- 4 Triads mostly decussately arranged; Cerrado region of central Brazil and just reaching adjacent Bolivia and Paraguay subsp. *weddelliana*
 - Triads mostly spirally arranged; Atlantic Coastal Forest of Brazil from Ceará, Pernambuco, and Alagoas to Rio Grande do Sul subsp. *pohliana*
- 5 Pinnae 16(13–23) per side of rachis; Rio de Janeiro, Serra do Mar 6
 - Pinnae 4(2–7) per side of rachis; Bahia, Espírito Santo, Minas Gerais, Rio de Janeiro, and São Paulo 7
- 6 Rachillae densely hairy subsp. *fiscellaria*
 - Rachillae glabrous subsp. *trinervis*
- 7 Rachillae densely hairy 8
 - Rachillae glabrous or nearly so 10
- 8 Rachillae 1.8(1.2–2.6) mm in diameter subsp. *wittigiana*
 - Rachillae 4.8(3.7–6.8) mm in diameter 9
- 9 Rachillae 2(2–3); Bahia, near Una subsp. *unaensis*
 - Rachillae 9(5–10); southern Bahia, Espírito Santo subsp. *linharensis*
- 10 Rachillae 4(2–6); Bahia subsp. *rubescens*
 - Rachillae 2(1–4); São Paulo, Rio de Janeiro, Minas Gerais, Espírito Santo, and southern Bahia subsp. *rodriguesii*

51a. *Geonoma pohliana* subsp. *pohliana*

Geonoma macroclona Drude (1882: 486). Type: BRAZIL. Bahia: near Ilhéus, no date, *M. Lhotzky s.n.* (holotype BR *n.v.*, isotype G, image!).

Geonoma blanchetiana Wendland ex Drude (1882: 494). Type: BRAZIL. Bahia: no locality, no date, *J. Blanchet s.n.* (holotype BR!).

Geonoma luetzelburgii Burret (1930a: 235). Type: BRAZIL. Rio de Janeiro: Serra da Estrela, 1400 m, August 1915, *P. Luetzelburg 6073* (holotype M!).

Geonoma bondariana Lorenzi (2010: 221). Type: BRAZIL. Bahia: Itacaré, Fazenda Petizeiro, estrada Ilhéus–Itacaré, 14°23'S, 39°02'W, 61 m, 9 February 2009, *H. Lorenzi, J. Jardim, A. Guimarães 6619* (holotype HPL *n.v.*, isotypes CEPEC *n.v.*, ESA *n.v.*, NY *n.v.*, RB *n.v.*, SP *n.v.*), **synon. nov.**

Geonoma littoralis Noblick & Lorenzi in Lorenzi (2010: 226). Type: BRAZIL. Bahia: Mun. Itacaré, Fazenda São Miguel, 7 July 2009, *H. Lorenzi, R. Pimenta, T. Flores & A. Guimarães 6709* (holotype HPL *n.v.*, isotypes CEPEC *n.v.*, ESA *n.v.*, NY *n.v.*, SP *n.v.*), **synon. nov.**

Geonoma meridionalis Lorenzi (2010: 240). Type: BRAZIL. Santa Catarina: Corupá, estrada para Itapocu-hansa, 26°25'S, 49°11'W, 24 February 2010, *H. Lorenzi, K. Soares & T. Flores 6834* (holotype HPL *n.v.*, isotypes ESA *n.v.*, NY *n.v.*, RB *n.v.*, SP *n.v.*), **synon. nov.**

Leaves pinnae 6(3–42) per side of rachis. *Inflorescences* rachillae 11(3–32), 2.9(1.1–4.4) 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 spirally arranged.

Distribution and habitat:—From 3°54'–29°41'S and 35°52'–51°28'W in the Atlantic Coastal Forest of Brazil from Ceará, Pernambuco, and Alagoas to Rio Grande do Sul at 450(7–1000) m elevation in brejo vegetation or lowland tropical rainforest (Fig. 33).

An extremely variable subspecies consisting of several morphotypes. In the northern-most part of the range there are isolated populations in Ceará, and in Pernambuco and Alagoas, occurring in brejo vegetation (*northern* morphotype), but too few specimens to test for differences.

Specimens from central Bahia (*bahia* morphotype) in coastal forest at low elevations have large, pinnate leaves with 42 pinnae per side of the rachis (data from only one specimen). Inflorescences are large, with wide, long peduncles and long rachillae.

Specimens from scattered localities in Bahia in restinga vegetation near sea level (*littoralis* morphotype) have pinnate leaves with distinctive narrow pinnae. The type of *Geonoma littoralis* is of this morphotype.

Some specimens from central Bahia (e.g., *Noblick 4747, Thomas 14115*) are sympatric with and similar to those of subsp. *rubescens*. Some specimens from southern Bahia (e.g., *Noblick 4778, 4789, Harley 17853*) are sympatric with and similar to those of subsp. *linharensis*. The differences between these subspecies in these areas are not clear.

A specimen (*Amorim 4208*) from central Bahia has unusual, elongate bracts, and is from a higher elevation (750 m). It may be a hybrid with *G. pauciflora*.

There is a gap in the distribution of subsp. *pohliana* in northern Espírito Santo, and this gap is occupied by subsp. *linharensis*. There are no differences between northern and southern populations of subsp. *pohliana*, although northern populations occur at lower mean elevations (287 versus 624 m).

Five specimens (*dos Santos s. n., Fernandes 1135, 3107, Fraga 2117, Mello-Silva 1570*) from the central part of Espírito Santo in the Serra da Mantiqueira appear to be intermediate in morphology between subsp. *pohliana* and subsp. *schottiana* and may be hybrids between these subspecies.

Some specimens (e.g., *Fiaschi 163, 552*) from eastern São Paulo have more, narrower pinnae (mean of 8 versus 4) and appear larger than usual.

Two specimens (*Lombardi 348, 1550*), unplaced for morphotype, from the Rio Doce valley in Minas Gerais have three broad pinnae and narrow inflorescence bracts.

51b. *Geonoma pohliana* subsp. *fiscellaria* (Martius ex Drude & Wendland) Henderson, comb. & stat. nov.

Basionym: *Geonoma fiscellaria* Martius ex Drude (1882: 486). Type: BRAZIL. Rio de Janeiro: Retiro de Petropolis, no date, *A. Glaziou 1180* (holotype BR!, isotype P!).

Leaves pinnae 21(19–23) per side of rachis. *Inflorescences* rachillae 8(14–21), 3.7(3.0–4.8) 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:—At 22°00'–22°28'S and 42°03'–44°27'W in the Atlantic Coastal Forest of Brazil in the Serra do Mar and Serra da Mantiqueira in Rio de Janeiro at 1050(900–1100) m elevation in montane tropical rainforest (Fig. 33).

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

Basionym: *Geonoma gastoniana* Glaziou ex Drude (1882: 496). Type: BRAZIL. Rio de Janeiro: haut de Tinguá, 7 June 1877, *A. Glaziou 9019* (holotype P!, isotypes BR!, *C. n. v.*, F!, K!).

Leaves pinnae 3 per side of rachis. *Inflorescences* rachillae 19, 0.5 mm in diameter, not hairy, filiform, narrowed between the flower pits; proximal and distal lips drying darker brown than the rachillae; triads mostly spirally arranged.

Distribution and habitat:—At 22°35'S and 43°28'W in the Atlantic Coastal Forest of Brazil in the Serra do Mar in Rio de Janeiro at 900 m elevation in lowland tropical rainforest (Fig. 34).

51d. *Geonoma pohliana* subsp. *kuhlmannii* (Burret) Henderson, comb. & stat. nov.

Basionym: *Geonoma kuhlmannii* Burret (1938b: 261). Type: BRAZIL. Rio de Janeiro: Nova Friburgo, 20 November 1922, *J. Kuhlmann 141* (holotype B, destroyed, isotype RB!).

Leaves pinnae 3(3–4) per side of rachis. *Inflorescences* rachillae 5(4–9), 2.8(2.3–3.2) 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 spirally arranged.

Distribution and habitat:—From 22°15'–22°53'S and 42°30'–43°16'W in the Atlantic Coastal Forest of Brazil in the Serra do Mar in Rio de Janeiro at 783(300–1300) m elevation in lowland tropical rainforest (Fig. 34).

51e. *Geonoma pohliana* subsp. *linharensis* Henderson, subsp. nov. (Appendix IV, Plate 54)

A subspeciebus aliis pinnis in quoque latere 4(2–7) atque rachillis 9(5–10) crebre pilosis differt.

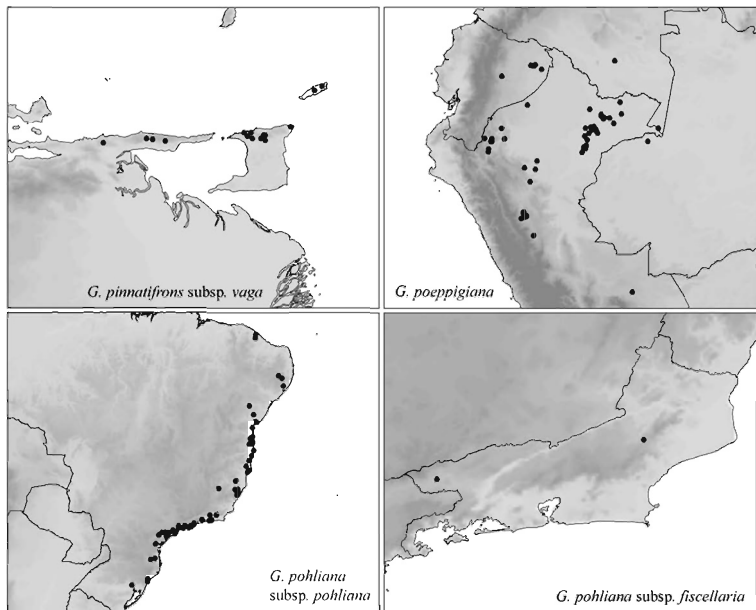


FIGURE 33. Distribution maps of *Geonoma pinnatifrons* subsp. *vaga*, *G. poeppigiana*, *G. pohliana* subsp. *pohliana*, and *G. pohliana* subsp. *fiscellaria*.

50. *Geonoma poeppigiana* Martius (1843: 35). Type: PERU. Loreto: Yurimaguas, February 1891, *E. Poeppig* 2295 (holotype M!).

Plants 1.9(1.0–4.0) m tall; stems 0.9(0.1–4.0) m tall, 1.6(1.2–2.0) cm in diameter, solitary, not cane-like or cane-like; internodes 0.5(0.3–0.8) cm long, yellowish and smooth, or, if short and congested, not scaly. *Leaves* 11(4–16) per stem, undivided or irregularly pinnate, not plicate, bases of blades running diagonally into the rachis; sheaths 16.9(10.0–25.0) cm long; petioles 49.8(30.0–100.0) cm long, drying green or yellowish; rachis 58.4(36.5–100.0) cm long, 4.8(2.3–7.9) mm in diameter; veins raised and rectangular in cross-section adaxially or not raised or slightly raised and triangular in cross-section adaxially; pinnae 4(1–11) per side of rachis; basal pinna 36.8(13.5–60.5) cm long, 4.9(0.5–15.3) cm wide, forming an angle of 40(12–90)° with the rachis; apical pinna 30.0(10.3–45.0) cm long, 15.1(3.3–24.5) cm long, forming an angle of 28(20–45)° with the rachis. *Inflorescences* unbranched or branched 1 order; prophylls and peduncular bracts not ribbed with elongate, unbranched fibers, flattened (if tubular, narrow, and elongate then not ribbed), deciduous or persistent; prophylls 27.8(15.5–40.0) cm long, not short and asymmetrically apiculate, the surfaces not ridged, without unequally wide ridges; peduncular bracts 25.8(21.0–38.0) cm long, well-developed, inserted 2.1(0.7–4.7) cm above the prophyll; peduncles 56.1(28.0–89.0) cm long, 5.6(1.9–11.1) mm in diameter; rachillae 4(1–10), 25.8(9.7–40.0) cm long, 4.2(1.9–7.1) 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