

26.0) cm long, 8.3(7.6–9.2) mm diameter; rachillae 4, 36.4(26.0–43.5) cm long, 7.9(6.7–8.8) mm diameter; proximal lips of flower pits irregularly shaped, often acute or acuminate, completely covering pits before anthesis; fruits compressed, obovoid in lateral view with an asymmetric base, ellipsoid in frontal view, with a pronounced meridional ridge, 19.8(19.6–19.9) mm long, 10.3(9.8–10.7) mm diameter.

Distribution and habitat. From 5°57'–6°08'N and 74°51'–75°10'W in Colombia (Antioquia) on the Cordillera Central at 1004(700–1440) m elevation in lowland or montane rainforest (Fig. 6).

Taxonomic notes. Specimens of *Pholidostachys sanluisensis* have been determined as *P. dactyloides*. They differ from that species in their fruits that are compressed, obovoid in lateral view with an asymmetric base, ellipsoid in frontal view, with a pronounced meridional ridge (Fig. 4E) (versus fruits that are scarcely compressed, obovoid, with an obscure longitudinal ridge in *P. dactyloides*, Fig. 4A). Fruits of *P. sanluisensis* are also larger—19.8(19.6–19.9) mm long and 10.3(9.8–10.7) mm diameter versus 9.0(6.0–16.5) mm long and 6.8(5.1–12.9) mm diameter in *P. dactyloides*.

Subspecific variation. There is no geographic discontinuity and only a few specimens are known.

7. *Pholidostachys synanthera* (Mart.) Moore (1969: 231). *Geonoma synanthera* Martius, 1823–1837: 13. *Calyptrogyne synanthera* (Mart.) Burret, 1930: 137. *Calyptronoma synanthera* (Mart.) Bailey, 1938: 166. Type:—PERU. Huánuco: Chicoplaya, no date, *H. Ruiz & J. Pavón s. n.* (holotype M n.v., isotype F!).

Stems 3.3(1.0–6.0) m long, 5.6(3.0–22.0) cm diameter, solitary. **Leaves** 15(4–27) per stem; sheaths 32.8(15.0–74.0) cm long; petioles 70.1(24.0–136.0) cm long; rachises 84.0(48.0–124.0) cm long, 8.1(3.6–12.6) mm diameter; pinnae 10(4–18) per side of rachis; basal pinna 49.6(26.5–67.5) cm, long, 1.7(0.2–7.6) cm wide, forming an angle of 50(27–72)° with the rachis; apical pinna 45.0(23.0–65.0) cm long, 10.5(2.5–22.5) cm wide, forming an angle of 15(9–24)° with the rachis. **Inflorescences** branched 1–2 orders, with a well-developed peduncle and rachis, and several rachillae, these spreading at anthesis; prophylls and peduncular bracts woody, not covering rachillae at anthesis; prophylls 38.0(25.5–55.0) cm long; peduncular bracts 32.1(19.0–41.0) cm long, inserted 8.6(5.0–12.5) cm above the prophyll; peduncles 44.8(20.0–70.0) cm long, 11.4(5.3–19.1) mm diameter; rachilla 12(4–25), 28.5(14.0–56.0) cm long, 6.1(3.7–10.3) mm diameter; proximal lips of flower pits regularly shaped, rounded, not covering pits before anthesis, recurved fruits scarcely compressed, ellipsoid, with obscure longitudinal ridges, 14.3(10.2–17.7) mm long, 8.4(6.1–10.5) mm diameter.

Taxonomic notes. *Pholidostachys synanthera* is the most widespread species in the genus.

Subspecific variation. There are three geographically separate populations of *Pholidostachys synanthera*. One occurs at 146(90–250) m elevation in the western Amazon region; the second on eastern Andean slopes at 1040(400–1620) m elevation; and the third on the Cordilleras Central and Oriental in Colombia at 1206(550–1750) m elevation. Only three variables (rachis length, number of divisions, apical pinna angle) are significantly different between the two Andean populations (*t*-test, *P* < 0.05), and they are here treated as one. Between this expanded Andean population and the Amazon population, 11 variables (stem height, stem diameter, leaf number, rachis length, rachis width, number of divisions, basal pinna length, basal pinna angle, apical pinna length, apical pinna width, rachillae width) are significantly different (*t*-test, *P* < 0.05). Most of these variables are from stems and leaves, and only one from inflorescences. Based on these results, Amazon and Andean populations are recognized as subspecies (subsp. *robusta*, *synanthera*).

Key to the subspecies of *P. synanthera*

- 1 Stems 2.6(1.0–6.0) m long; rachises 74.1(48.0–91.0) cm long; pinnae 7(4–12) per side of rachis; western Amazon region in Colombia, Peru, and Brazil at 146(90–250) m elevation subsp. *robusta*
- Stems 3.9(1.8–6.0) m long; rachises 92.2(55.0–124.0) cm long; pinnae 12(7–18) per side of rachis; Cordilleras Central and Oriental in Colombia and eastern Andean slopes in Colombia, Ecuador, and Peru at 1064(400–1750) m elevation subsp. *synanthera*

7.1 *Pholidostachys synanthera* subsp. *synanthera*

Stems 3.9(1.8–6.0) m long. Leaf rachises 92.2(55.0–124.0) cm long; pinnae 12(7–18) per side of rachis.

Distribution and habitat. From 7°19'N–13°31'S and 70°07'–78°57'W in the Cordilleras Central and Oriental in Colombia and eastern Andean slopes in Colombia, Ecuador, and Peru at 1064(400–1750) m elevation in lowland or montane rainforest (Fig. 6).

Subspecific variation. Regression shows there are significant associations between elevation and one stem, four leaf, and one inflorescence variables. Squared multiple *R* for the regression of stem height on elevation is 0.30, sheath length 0.88, number of pinnae 0.42, basal pinna width 0.37, apical pinna length 0.69, and rachilla width 0.13. Values for these variables decrease with elevation, except for number of pinnae and rachillae width which increase.

The northernmost population of subsp. *synanthera* occurs in the Cordilleras Central and Oriental in Colombia and has 13–17 rachillae per inflorescence. The northernmost specimen (*Soejarto 2743*) is tentatively included here; it is unusual in having only 4 rachillae. One specimen (*Callejas 4221*) appears to be a mixed collection, with the fruits (excluded from this study) belonging to *P. sanluisensis*.

Along eastern Andean slopes in Colombia, Ecuador, and Peru, subsp. *synanthera* occurs in scattered localities. There do not appear to be any differences between these populations although sample size in small in some of them. The gaps between them may anyway be collecting artifacts. In Amazonas and Cajamarca, Peru, there is extreme variation. Two specimens (*Díaz 8093*, *Rodríguez 1013*) are the smallest seen with narrow pinnae and slender inflorescences with the rachillae 19.0–22.5 cm long and 4.0–4.3 mm diameter. Another specimen (*Campos 4243*), from less than 40 km away, has the some of the largest rachillae seen in the subspecies, 34.0 cm long and 9.6 mm diameter. Other specimens from this region are more usual in size. This kind of variation is reminiscent of that seen in *Geonoma poeppigiana* from the same region (Henderson 2011). It is also of interest that *Pholidostachys amazonensis* occurs in this same region, and only differs from subsp. *synanthera* in its spicate inflorescence.

7.2 *Pholidostachys synanthera* subsp. *robusta* (Trail) Henderson, *comb. & stat. nov.*

Basionym:—*Calyptronoma robusta* Trail (1876: 330). *Calyptroglyne robusta* (Trail) Burret, (1930: 137). Type:—BRAZIL. Amazonas: Camana, Rio Javari, 5 December 1874, *J. Trail 961/CLXXXVI* (holotype K!, isotypes BM!, NY!, P n.v.).

Stems 2.6(1.0–6.0) m long. Leaf rachises 74.1(48.0–91.0) cm long; pinnae 7(4–12) per side of rachis.

Distribution and habitat. From 0°34'N–6°28'S and 68°46'–75°50'W in the western Amazon region of Colombia, Peru, and Brazil at 146(90–200) m elevation in lowland rainforest (Fig. 6).

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