

CALATHEA GENTRYI AND C. YAWANKAMA (MARANTACEAE),  
NEW SPECIES ENDEMIC TO AMAZONIAN PERU

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ABSTRACT

*Calathea gentryi* H. Kenn., and *C. yawankama* H. Kenn., both endemic to Amazonian Peru, are described as new. *Calathea gentryi* occurs in Department Loreto in both Maynas and Alto Amazonas Provinces. *Calathea gentryi* is characterized by all basal leaves, a single, relatively small (4.5–7 × 1–2.5 cm) narrowly ellipsoid to subcylindric inflorescence of 12 to 19 spirally arranged small (1.1–1.5 × 0.9–1.2 cm) bracts, and three bracteoles per flower pair, two lateral, membranous, and a medial, clavicate, one. *Calathea gentryi* shares a similar habit and inflorescence morphology with *C. barbata* Peters. and *C. schunkei* H. Kenn. *Calathea yawankama*, known only from the type locality in Department Amazonas, is characterized by the relatively broad (length: width ratio 1.15–2.23:1), all basal leaves, leaves with the blades patterned with a light green band along the midrib adaxially, purple abaxially, and small (2–2.5 × 2–2.7 cm), globose, inflorescence of 12 to 18 spirally arranged bracts, the presence of clavicate bracteoles and white flowers. *Calathea yawankama* shares a similar inflorescence morphology with *C. compacta* S. Suárez & Galeano and *C. pearcei* Rusby.

RESUMEN

Se describen como nuevas *Calathea gentryi* H. Kenn., y *C. yawankama* H. Kenn., ambas endémicas del Amazonas Peruano. *Calathea gentryi* aparece en el Departamento Loreto en las provincias de Maynas y Alto Amazonas. *Calathea gentryi* se caracteriza por tener todas sus hojas basales, una inflorescencia simple, relativamente pequeña (4.5–7 × 1–2.5 cm) de estrechamente elipsoide a subcilíndrica con 12 a 19 brácteas pequeñas en disposición espiral (1.1–1.5 × 0.9–1.2 cm), y tres brácteolas por cada par de flores, dos laterales membranosas, y una media claviculada. *Calathea gentryi* comparte un hábito similar y morfología de la inflorescencia con *C. barbata* Peters. y *C. schunkei* H. Kenn. *Calathea yawankama*, se conoce únicamente de la localidad del tipo en el Departamento de Amazonas, se caracteriza por tener todas sus hojas basales relativamente anchas (relación longitud/anchura 1.15–2.23:1). Limbo de las hojas con una banda verde clara a lo largo de la Costilla central en el lado adaxial, y púrpura en el abaxial, e inflorescencia pequeña (2–2.5 × 2–2.7 cm), globosa, con 12 a 18 brácteas dispuestas espiralmente, la presencia de brácteolas claviculadas and flores blancas. *Calathea yawankama* comparte una morfología similar de inflorescencia con *C. compacta* S. Suárez & Galeano y *C. pearcei* Rusby.

Macbride (1936) cited a total of 73 species of Marantaceae in 7 genera, including 39 species in the genus *Calathea* [four species are currently considered synonyms, leaving 35 species]. During a short collecting trip in Peru, Kennedy (1982) collected 36 species of *Calathea*, 12 of which were noted as undescribed and one, a previously described species, not yet recorded for Peru. Brako and Zarucchi (1993) listed 10 genera [one now considered a synonym, leaving 9 genera] and 90 species with 49 species in *Calathea*. A survey of the collections in the TROPICOS database (Jon Ricketson, pers. comm.), primarily of specimens housed at MO, found 75 species of *Calathea* including one of the two new species described herein. Four of these species are considered synonyms, leaving a total of 71 known species in Peru. In addition, five new species are currently known: four still undescribed species, plus one of the two being described herein. Thus, since the original report of 35 species listed by Macbride (1936) the number has increased to 76 currently known, this is approximately a 117% increase in known *Calathea* species in Peru in 72 years. Interestingly, the number of species of *Monotagma* recognized from Peru has also more than doubled, increasing from eight species (Macbride 1936) to ca. 17 (Hagberg 1990; Hagberg & Eriksson 2011). Surely, with new collections in previously, nearly inaccessible locations, these numbers will increase.

Although Borchsenius et al. (2012) included less than 15% of the species of *Calathea* in their molecular phylogeny, they elected to remove most species to the resurrected genus *Goepertia* Nees. Hörandl and Stuessy (2010, p.1650), in their discussion of paraphyletic groups, note: “Information content and practicability, however, are needed as additional criteria to translate natural taxa into a formal classification.” I am inclined to wait

until a more thorough sampling of the genus has been undertaken to decide on a revised taxonomy of the group, whether to split it into more than one genus or submerge the other, much smaller, but currently recognized, genera within a broader designation of *Calathea*.

***Calathea gentryi*** H. Kenn., sp. nov. (**Fig. 1**). TYPE: PERÚ. LORETO: Prov. Maynas, Negro Urco, Río Napo, non-inundated forest on lateritic soil, 160 m, 03°00'S, 073°28'W, 19 Jan 1983, A. Gentry & L. Emmons 39543 (HOLOTYPE: MO [Accession No. 3137568]; ISOTYPE: UCR [Accession No. 283739]).

Haec species a *Calathea barbata* Petersen et *C. schunkei* H. Kenn. foliis basalibus tantum praesentibus, petiolo satis elongato (9.5–51.5 cm vs. nullo vel brevi, raro usque ad 9.3 cm) atque pulvino longiore (2.6–5.5 vs. 0.7–2.3 cm), a *C. barbata* bracteis brevioribus (1.1–1.8 vs. 2.5–2.7 cm), venis inter se distantioribus (17 ad 21 vs. 28 ad 30 per 3 cm) atque sepalis brevioribus (minus quam 10 vs. 15–17 mm) distinguitur.

**Plants** acaulescent, rhizomatous, perennial herbs, 0.8–1.3 m; cataphylls narrowly ovate, apex apiculate, sparsely tomentose, the hairs 0.2–0.5 mm, innermost cataphyll 16–33.5 cm. **Leaves** 1 to 4 basal; leaf sheath not auriculate, red-brown, sparsely tomentose apically, the hairs longer and denser basally, 14–30 cm; petiole glabrous to subglabrous basally, (9.5–)21–52.2 cm; pulvinus elliptical in cross-section, brown, glabrous, articulate, 2.6–5.5 cm; leaf blade elliptic, apex obtuse to rounded with a short acumen, base acute, occasionally obtuse (angle 75°–105°) shortly abruptly attenuate, 29.5–50.7 × 11.8–17.5 cm (length:width ratios 2.09–3.60:1), 3 minor veins between major veins, vein angle from midrib (measured at midpoint of blade) 29°–38°, 17 to 21 veins per 3 cm, 24 to 27 veinlets per 5 mm (measured at midpoint of each side of the blade), adaxial surface green, glabrous, midrib densely tomentose, the hairs light brown, up to 0.5 mm, abaxial leaf surface glabrous, occasionally pilose (*Rimachi 8151*) the hairs 0.4–0.5 mm, midrib glabrous. **Inflorescence** terminal, 1 per shoot, imbricate, narrowly ellipsoid to subcylindric, 4.5–7 × 1–2.6 cm; peduncle minutely tomentose (30× magnification), 27.5–53.5 cm. **Bracts** 12 to 19, spirally arranged, broadly elliptical, apex obtuse to rounded with slight acumen, upper bracts acute to slightly acuminate, 1.1–1.8 × 0.9–1.2 cm, each bract subtending up to 7(to 10) flower pairs, abaxial surface of bracts green, greenish bronze or purple, densely minutely tomentose, the hairs 0.1–0.2 mm, adaxial surface densely minutely tomentose in apical half, the hairs up to 0.7 mm, basal half glabrous; bicarinate prophyll membranous, ovate, apex obtuse, minutely tomentose (20× magnification) along margins and apical 3–4 mm centrally, 1.2–1.6 × 0.6–0.9 cm, width from carina to carina 0.4–0.6 cm; secondary bract membranous, ovate, apex obtuse, minutely tomentose in apical 3–4 mm, 1.1–2 × 0.6–0.9 cm; bracteoles 3 per flower pair, 2 lateral, membranous, narrowly elliptic 0.9–0.95 × 0.25 cm, 1 medial, claviculate, linear, 1.1–1.5 × ca. 0.08 cm. **Flower** white to pink. **Sepals** membranous, elliptic, obtuse, glabrous except a few minute hairs 0.1 mm, in apical 1–3 mm, 8–10 × ca. 3 mm. **Corolla** tube glabrous, 16.5–17 mm; corolla lobes subequal, elliptic, glabrous, 5–5.5 × 3–3.5 mm. **Staminodes** 3, outer staminode obovate, retuse, ca. 5 × 3.5 mm; callose staminode petaloid apically, spatulate, apex emarginate, ca. 5.5 mm; cucullate staminode ca. 5 mm; anther 1.5 mm. **Ovary** glabrous. **Capsule** obconoid with raised rim, 8–11 × 8–9 mm, crowned by a persistent calyx; seeds usually 3 per capsule, trigonous, rugose on the outer surface, 5–6 × 4–5 × 3–4.5 mm, aril with 2 lateral appendages, ca. 4 mm, folded over in immature fruit.

Additional specimens examined: **PERÚ. Loreto: Prov. Maynas:** near Base Araguana, upper Río Mazán, ca. due N of Santa Maria de Nanay, non-inundated forest, 03°28'00"S, 072°50'00"W, 9 Jul 1976, A. Gentry & J. Revilla 16564 (F, MO); trail from Indiana on Río Amazonas to Río Napo, well drained upland forest on clay, 200 m, 03°28'00"S, 072°50'00"W, 24 May 1978, A. Gentry et al. 22196 (MO, UCR USM); Dtto. Iquitos, Río Momón, del caserío de San Andres hasta el caserío de Santa Rosa, en terreno arcilloso, 20 Feb 1986, M. Rimachi Y. 8151 (MO); near Zamito, Río Nanay, upland forest, ombrophile, 19 Feb 1969, T. Plowman & F. Tina 2506 (GH, MO, UCR, US); Santa Maria de Nanay, Quebrada Yarina, bosque primario, 150 m, 03°55'S, 073°40'W, 22 May 1989, R. Vásquez & N. Jaramillo 12232 (MO). **Prov. Alto Amazonas:** Capihuari, 5 km NE of Andoas on Río Capihuari, near Ecuador border, along oil pipeline, lateritic uplands alternating with Mauritia swamps, 240 m, 03°28'00"S, 072°50'00"W, 17 Nov 1979, A. Gentry & A. Díaz 28217 (MO).

**Distribution and habitat.**—*Calathea gentryi* is endemic to Peru. It is known from the well-drained, upland forest in Department Loreto from 150–240 m on lateritic, clay soils.

**Discussion.**—*Calathea gentryi* belongs to *Calathea* sect. *Breviscapus* Benth., *sensu lato*. It is characterized by the leaves all basal, a single, narrowly ellipsoid to subcylindric, 4.5–7 × 1–2.5 cm, inflorescence of 12 to 19 spirally arranged relatively small, 1.1–1.5 × 0.9–1.2 cm, bracts, and the presence of three bracteoles, two membranous lateral ones and a single, medial, claviculate, one. *Calathea gentryi* is most similar in aspect to *Calathea*

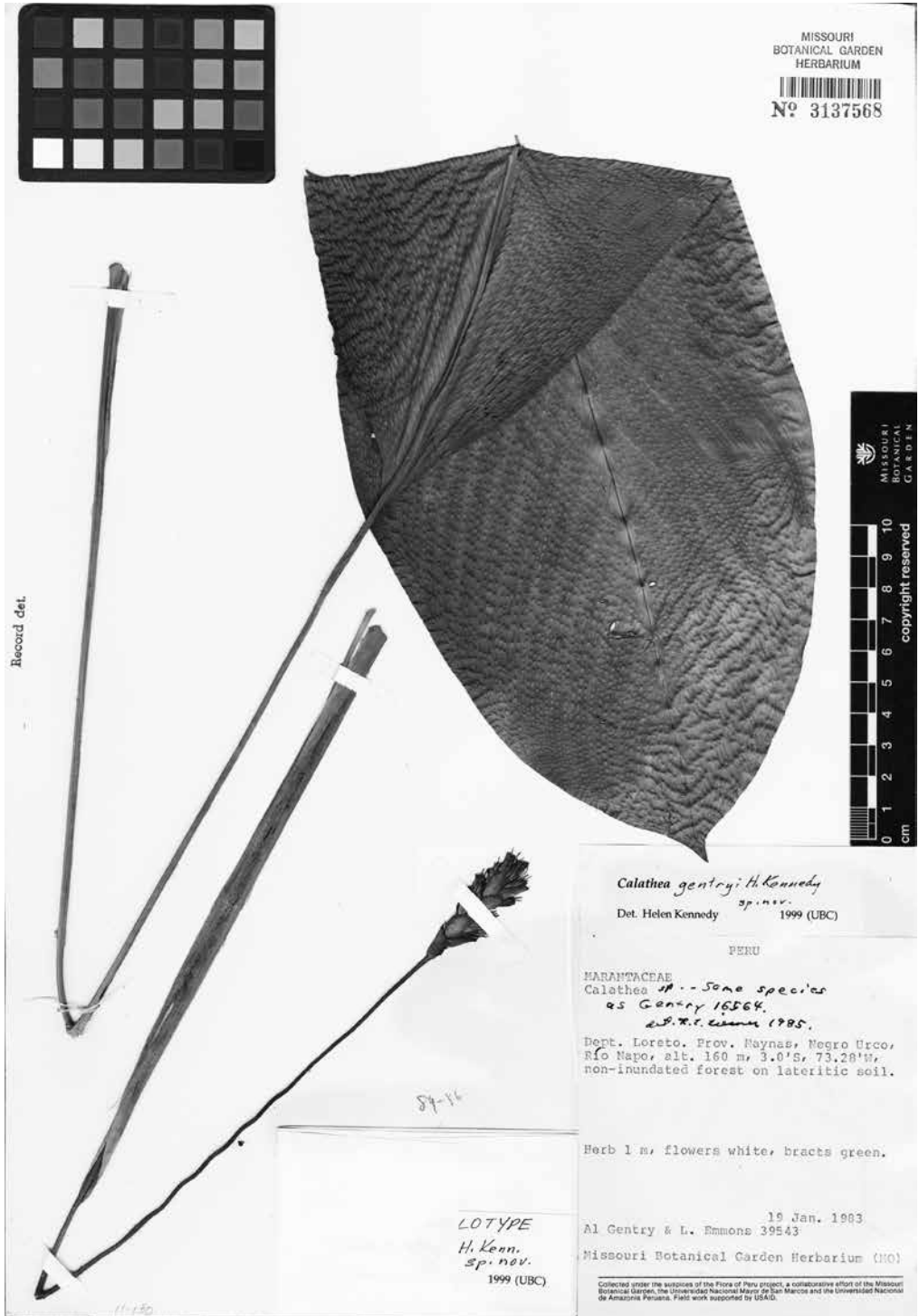


Fig. 1. *Calathea gentryi* H. Kenn. Holotype. Scan of Missouri Botanical Garden specimen (Gentry & Emmons 39543, MO). Tropicos.org. Missouri Botanical Garden. 10 Feb 2018 <<http://www.tropicos.org/Image/100468000>>

*barbata* Peters. sharing an elongated peduncle, a relatively short (usually 7 cm or less) inflorescence of spirally arranged bracts and the presence of claviculate bracteoles. *Calathea schunkei* H. Kenn. likewise has a relatively elongated peduncle, spirally arranged bracts and both claviculate and membranous, bracteoles. *Calathea gentryi* differs from both *C. barbata* and *C. schunkei* in having only basal leaves vs. both basal and cauline leaves, a more elongated petiole (9.5–51.5 cm) vs. petiole absent or short (rarely to 9.3 cm) and a longer pulvinus (2.6–5.5 vs. 0.7–2.3 cm). *Calathea gentryi* differs from *C. barbata* in the shorter bracts (1.1–1.8 vs. 2.5–2.7 cm), the wider vein spacing (17 to 21 vs. 28 to 30 veins per 3 cm) and the shorter sepals (<10 vs. 15–17 mm) and further from *C. schunkei* in the elliptic vs. narrowly elliptic to narrowly ovate-elliptic leaves, leaf surface smooth, relatively planar, vs. strongly plicate and the bracts green to purple vs. bright red.

This species is referred to locally by the common name “Bijao” (*T. Plowman* & *F. Tina* 2506 & *M. Rimachi* Y. 8151).

*Etymology*.—The specific epithet, *gentryi*, is in honor of Alwyn Gentry, an avid field botanist, former Curator at Missouri Botanical Garden and SCZ herbarium, and collector of this new species. It is an honor to dedicate this taxon to him for his numerous neo-tropical collections of Marantaceae, his generous help to me in the field and for sharing his vast knowledge of field identification characters of tropical plants.

***Calathea yawankama*** H. Kenn., sp. nov. (**Fig. 2**). TYPE: PERÚ. AMAZONAS: Condorcanqui, Río Cenapa region, near Yuwi inci Creek, 6 hour walk from the Pongo Mori, Río Comaina, on trail to Kusu (Río Numpatakai), primary forest, 1700–2000 ft, 04°27'00"S, 078°13'00"W, 11 Mar 1973, B. Berlin 947 (HOLOTYPE: MO [Accession No. 2426912]).

Haec species a *Calathea compacta* S. Suárez & Galeano et *C. pearcei* Rusby statura humilior (19–30 vs. 40–80 cm alta) atque lamina foliari latiore (8.4–11.5 vs. 2.5–6 cm), longitudinis cum latitudine proportione (1.15–2.23 vs. 2.48–5.67) apice obtusa subrotundata (vs. acuta acuminata), a *C. pearcei* foliis basalibus tantum praesentibus, petiolo brevior (0–1.9 vs. 3–24 cm) atque florum paribus bracteola claviculata 1 (vs. bracteolis 2) subtentis distinguitur.

**Plants** caulescent, rhizomatous herbs, 19–30 cm; cataphylls narrowly ovate, apex apiculate, sparsely scattered pilose near margins apically; innermost cataphyll 5.5–10.5 cm. **Leaves** 1 to 3 basal; leaf sheath auriculate only when petiole very short or absent, center portion adaxially subglabrous, margin of wings villous, 4–7.8 cm; petiole subglabrous, 0–1.9 cm; pulvinus round in cross-section, villous throughout, the hairs 1–1.5 mm, articulate, nearly twice the diameter of the petiole, 0.3–1.7 cm; leaf blade firm, coriaceous, elliptical, apex obtuse to subrounded with slight (to 3 mm) acumen, base obtuse to rounded, 13.5–20 × 8.4–11.5 cm (length:width ratios 1.15–2.23:1), the two sides unequal (wider:narrower side ratios 1.26–1.85:1), vein angle from midrib (angle taken from central 1/3 of blade at midpoint, longitudinally, of blade) 46°–55°, 7 to 8 veins per 3 cm, vein spacing 3.5–6 mm, adaxial surface variegated dark and light green with a fish-tail band of lighter green along the midrib, glabrous, midrib light green, glabrous basally, sparsely villous in apical 1.5–2 cm, the hairs more dense toward apex, abaxial leaf surface purple, glabrous except marginal 0.5–1 mm with scattered hairs, the hairs denser in apical 1.5 cm, hairs 1 mm, midrib purple, villous, the hairs golden, 1–1.5 mm. **Inflorescence** terminal, 1 per shoot, borne above the leaves, imbricate, globose, 2–2.5 × 2–2.7 cm; peduncle villous, sparsely so in apical 1/4, 13–18 cm. **Bracts** 12 to 18, spirally arranged, herbaceous, ovate, apex obtuse, ca. 1.2 × 0.9 cm, abaxial surface villous, the hairs pale golden, 0.8–1.3 mm, adaxial surface villous in apical half, glabrous basally; bicarinate prophyll unknown due to condition of specimen; secondary bract membranous, elliptic, apex rounded, 0.6 × 0.3 cm; bracteoles 3 per flower pair, 1 medial, claviculate, ca. 0.7 cm, 2 lateral, membranous. **Sepals** membranous, narrowly elliptic, obtuse, glabrous, 7–8 × 1–1.5 mm. **Corolla** glabrous, white, corolla tube ca. 6.5–7 mm, corolla lobes subequal, elliptic, ca. 5 × 2 mm. **Staminodes** 3, the outer and callose staminodes unknown due to condition of specimen; cucullate staminode ca. 3 mm. **Ovary** ca. 1 mm. **Capsule** obpyramidal with raised apical rim above the level of the calyx attachment, ca. 6.5 × 8 mm; crowned by a persistent calyx.

Additional specimens examined: PERÚ. Amazonas: Condorcanqui, alrededor de yucui entsa 6 horas de pongo Mori, el Camino de Kusu, monte, 1200–2000 ft, 11 Mar 1973, R. Kayap 559 (MO [Accession No. 2426911]); Condorcanqui, Río Cenapa region, near Yuwi inci Creek, 6 hour walk from the Pongo Mori, Río Comaina, on trail to Kusu (Río Numpatakai), primary forest, 1700–2000 ft, 04°27'00"S, 078°13'00"W, 12 Mar 1973, E. Ancuash 106 (MO [Accession No. 2426912]).



FIG. 2. *Calathea yawankama* H. Kenn. Holotype. Scan of Missouri Botanical Garden specimen (Berlin 947, MO). Insert at left with scale (in cm) is an enlargement of the holotype inflorescence to show detail. Tropicos.org, Missouri Botanical Garden. 10 Feb 2018 <<http://www.tropicos.org/Image/100468000>>

*Distribution and habitat.*—*Calathea yawankama* is endemic to Peru and is known only from the type locality in the Department of Amazonas. It occurs at 1700–2000 ft elevation in primary forest. The type was collected in flower in March.

*Discussion.*—*Calathea yawankama*, shares the general habit of several basal leaves, the characteristically small, ca. 1–3 × 1–3 cm, inflorescence of relatively small, ca. 0.7–2.5 cm, bracts and the commonly white flowers with other species in *Calathea* section *Microcephalum* Benth. The inflorescence is most similar to that of *C. compacta* and *C. pearcei*, consisting of a small, nearly spherical, inflorescence of 12 to 19 bracts and white flowers subtended by clavicate bracteoles. *Calathea yawankama* differs from both *C. compacta* and *C. pearcei* in its smaller stature (19–30 cm vs. 40–80 cm) and purple vs. green abaxial leaf surface and additionally from *C. pearcei* in having all basal vs. all cauline leaves. *Calathea yawankama* differs from *C. compacta* in the elliptic to broadly elliptical leaf blades (13.5–20 × 8.4–11.5 cm) with an obtuse to subrounded apex and obtuse to rounded base vs. narrowly ovate-elliptical leaf blades (15–34 × 2.5–6 cm) with an acuminate apex and cuneate base, the shorter petiole (0–1.9 cm vs. 3–24 cm), and having a single clavicate bracteole per flower pair vs. two. In the description of *Calathea* (*Monosticha*) *divericata* (a synonym of *C. pearcei*) Rusby (1902:695) notes “...anthers conspicuous, exceeding the bracts, nearly 4 mm. long, slender, acutish, tapering toward the base.” This is actually a reference to the visible clavicate bracteoles, rather than anthers, a characteristic of the three above mentioned species. Like *C. yawankama*, the leaves of *C. fucata* H. Kenn. and *C. undulata* Linden & André are also patterned with a white to pale green band along the midrib adaxially and purple abaxially. However, *C. yawankama* differs from both *C. fucata* and *C. undulata* by a globose vs. obconical inflorescence and the longer peduncle (13–18 vs. 3.3–13 cm). *Calathea yawankama* further differs from *C. fucata* in the broader vein spacing (7 to 8 vs. 12 to 16 veins per 3 cm), the presence vs. absence of clavicate bracteoles and in having strictly chasmogamous flowers vs. having both cleistogamous and chasmogamous flowers; and from *C. undulata* by having only a single inflorescence vs. commonly having two, by the more numerous bracts (12 to 18 vs. 3 to 5 bracts) and the bracts ovate vs. broadly ovate.

With its attractively patterned leaf of dark green with a medial band of lighter green above and purple below, *C. yawankama* would be an excellent addition to horticulture. The Aguaruna common name for the plant was noted as “moháya yawánkam” (Berlin 947), “mujaya yawankam” (Kayap 559) and “uawankam” (Ancuash 106).

*Etymology.*—The specific epithet, *yawankama*, is taken from the Aguaruna (Indigenous people) common name for this plant. Brent Berlin, anthropologist at the University of Georgia, who collected the plant as part of his research, commented: “The Aguaruna generic name is *yawánkam*. The specific epithet is *mujáya* (meaning ‘of the forest, mountain’)”.

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