

prompt sequence; anthers orange to greenish yellow, 0.6–1 mm long, ca. 1 mm wide, inclined over and obscuring the pistil; thecae ellipsoid, not divaricate; pollen orange fading to creamy white. *Infructescence* arching; spathe reflexed; spadix to 30 cm long, ca. 2 cm diam.; berries orange, broadly ovoid, rounded at apex; mesocarp pulpy, bitter-tasting; seeds 1 or 2 per berry, white, to 5 mm long, ca. 2.5 mm wide, 1.5 mm thick.

Anthurium standleyi is known for certain only from central and southern Costa Rica. It was first collected by Paul Standley at two sites, La Verbena and San Sebastian south of San José in what was probably premontane wet forest. It has been collected more recently in the region northeast of San Isidro del General. The species ranges from 200 to 1,600 m and may be restricted to premontane wet forest.

This species is distinguished by its cordate leaf blades, long-tapered, purplish violet spadix and orange berries. Among Central American species with cordate leaf blades and orange fruits, *A. standleyi* is unique in having an ovate leaf blade and a collective vein originating above the middle of the blade.

Because of its prominently cordate leaf blades, *Anthurium standleyi* is likely to be confused only with *A. watermaliense*, which differs in having the collective vein arising from the first or second basal vein and a proportionally broader, often maroon spathe.

A cultivated collection from the University of Hawaii was reportedly based on a Dressler collection from Achioté, a region of tropical moist forest in the Isthmus of Panama. The species has never been collected in Panama, and the Hawaiian collection is possibly mislabeled.

COSTA RICA. PUNTARENAS: Río Coto Brus, 23 km N of La Unión, Panama border, *Croat 26674* (MO); cultivated at Las Cruces Botanical Garden, 1,300 m, *Croat 44436* (MO). SAN JOSÉ: Santa Ediviges de Escazú, residential neighborhood at W side of Rte. 105, 1,150 m, 9°55'N, 84°08.5'W, *Grayum 9510* (CR, MO); 0.5 mi. above turnoff to Canaán at Rivas, 900 m, *Croat 43431* (MO); 4.5 mi. SW of Canaán, road from Rivas, 900 m, *Croat 43439* (B, CAS, COL, CR, DUKE, F, GH, HUA, K, LE, M, MEXU, MO, NY, PMA, QCA, RSA, SEL, UC, US, VEN, W); La Verbena, *Standley 32243* (US); San Sebastián, *Standley 49296* (US); Talamanca, less than 200 m, *Tonduz 8721* (NY); Cerro Tapezco, *Jiménez 627* (US); Río Buena Vista, S of Buena Vista, NE of San Isidro del General, *Luteyn 3287* (DUKE); Río Herradura (tributary of Río Chirripó del Pacífico), NW of Canaán, Valle General, 1,600 m, 9°29'N, 83°37'W, *Burger & Liesner 7093* (MO, US).

Anthurium superbum Madison, Selbyana 5: 94. 1978.

a. *Anthurium superbum* subsp. *superbum*.

TYPE: Ecuador. Napo: La Primavera, Río Napo, *Madison 5516* (holotype, SEL 2727370; isotypes, F, K, MO, QCA, U, US). Figures 308, 309.

Epiphytic; stem 4–8 cm long, 3–4 cm diam.; roots numerous, descending, rose-colored, velutinous, 5–7 mm diam.; cataphylls subcoriaceous, (3)8–10 cm long, acute at apex, dark green, drying brown, persisting intact or semi-intact. *Leaves* erect; petioles 4–12 cm long, 5–8 mm diam., ± D-shaped, with the medial rib and the margins raised adaxially, 3–5-ribbed to rounded abaxially, the surface dark green to sometimes dark purple-green; geniculum slightly thicker than petiole, ca. 0.8 cm long; blades coriaceous, stiff, elliptic to oblong-elliptic, obtuse-rounded at apex, obtuse at base, 34–65 cm long, 12–18 cm wide, broadest just above the middle, the margins revolute; upper surface matte to semiglossy, bullate, dark green, lower surface matte, sometimes tinged reddish or purple; midrib prominently acute above and below; primary lateral veins 7–10 per side, departing midrib at 40–50° angle, very long-arcuate to the margin or slightly arcuate to the collective vein, sunken to weakly raised above, raised below, drying slightly raised above and below; interprimary veins few, less prominent than primary lateral veins; tertiary veins sunken above, raised below, drying slightly raised; collective vein arising from about the middle of the blade or absent, sunken above, raised below, slightly raised above and below when dried, nearly as prominent as primary lateral veins, 10–20 mm from margin. *Infructescences* erect, shorter than leaves; peduncle 7–18 cm long, 5–12 mm diam., ca. 2× as long as petiole, dark green, terete; spathe spreading to reflexed, subcoriaceous, green, lanceolate-elliptic, 8–9 cm long, 2–3 cm wide, broadest near the base, acute at apex (the acumen slightly inrolled), acute at base; stipe to 5 mm long; spadix creamy white, sometimes faintly tinged with purple, cylindrical, sessile or shortly stipitate, erect, straight to slightly curved, 8–15 cm long, 8–12 mm diam. midway; flowers ± rhombic, 1–1.5 mm long, 1.5–2 mm wide; 16–17 flowers visible in principal spiral, 23–24 in alternate spiral; tepals minutely puberulent to densely papillate; lateral tepals 0.7–0.9 mm wide, inner margins ± straight, outer margins 2–4-sided; pistils prominently exerted, papillate; stigma circular, 0.3 mm long, brushlike.

Infructescence with the spathe persisting; berries lavender with the apical $\frac{1}{4}$ white, obovoid, sharply apiculate at apex, 6–7 mm long, 2.5 mm diam.

Anthurium superbum is known to occur in tropical moist to tropical wet forest life zones, at 180 to 350 m. It comprises two allopatric subspecies, the typical one in Napo, Ecuador, near La Primavera on the Río Napo, and subsp. *brentberlinii* in Amazonas, Peru, in the Río Cenepa area. Both subspecies are characterized by their stiffly erect, dark green leaves with short petioles and bullate, coriaceous blades often tinged red or purple below, and by the short inflorescence with a whitish spadix with many flowers per spiral. Neither subspecies is likely to be confused with any other member of the section.

While subsp. *brentberlinii* is not known in cultivation, subsp. *superbum* has been cultivated for about 10 years in a few botanical gardens and by a few hobbyists. It is a stunning plant and will, hopefully, become more widespread in cultivation in the future.

ECUADOR. NAPO: Río Napo, La Primavera, *Madison 5516* (F, K, MO, QCA, SEL, U, US); Laguna Taracoa, 250 m, *Christenson 1529* (MO), cultivated.

b. *Anthurium superbum* subsp. *brentberlinii* Croat, subsp. nov. TYPE: Peru. Amazonas: Río Cenepa, E of community of Huampami, 300–330 m, *Berlin 644* (holotype, MO 2251387; isotype, NY). Figure 310.

Differt ssp. *typicum* caulibus longioribus, laminas angustioribus, spadice angustiore cum seriebus spiralibus paucioribus florum.

Epiphytic; stem to 16 cm long, 7–14 mm diam.; roots dense, 3–5 cm long, 3–4 mm diam.; cataphylls subcoriaceous, linear-lanceolate, 3–13 cm long, drying reddish brown, persisting semi-intact. *Leaves* erect; petioles 9–17 cm long, 5–10 mm diam., D-shaped, with the medial rib and margins raised adaxially, angular abaxially; geniculum somewhat darker than petiole when dried, 0.5–1 cm long; sheath 2.5–4 cm long; blades coriaceous, oblong-elliptic, acute to obtuse at apex, attenuate to acute at base, 45–70 cm long, 9–17 cm wide, broadest just above the middle; upper surface apparently quilted, lower surface often tinged red or purple; midrib acutely raised above and below; primary lateral veins 4–9 per side, departing midrib at 50–60° angle, very long-arcuate to the margin or slightly arcuate to the collective vein, raised to obscure above, raised below when dried; interpri-

mary veins usually present, less conspicuous than primary lateral veins; tertiary veins weakly raised to obscure above and below when dried; collective vein arising from about the middle of the blade or absent, rarely from near the base, sunken above, raised below when dried, equally as prominent as primary lateral veins, 10–15 mm from margin. *Inflorescences* erect; peduncle 11–29 cm long, 2–5 mm diam., 1–2.6 × as long as petiole, terete; spathe reflexed, subcoriaceous, green, oblong-lanceolate, 4–10 cm long, 1–2 cm wide, broadest near the base, acute at apex, acute at base; spadix white, cylindroid, ± straight, 5–7 cm long, 4–6 mm diam. midway; flowers ± rhombic, ca. 0.8 mm in both directions; ca. 12–15 flowers visible in either spiral; tepals densely papillate; stamens held erect above the tepals; filaments exerted 0.2 mm; anthers 0.2 mm in both directions. *Infructescence* spreading-pendent; spathe persisting or absent; spadix 20 cm long, 2 cm diam., with berries scattered throughout; berries purple, tipped white (B & K purple 5/5), obovoid-ellipsoid, obtuse at apex, ca. 7 mm long, ca. 4 mm diam.; pericarp with numerous raphide cells; seeds 1–2 per berry, yellow-brown when dried, oblong, 2 mm long, 1 mm diam.

Anthurium superbum subsp. *brentberlinii* is endemic to northern Peru in Amazonas, where it is known only from the Río Cenepa area at 180 to 350 m in a tropical wet forest life zone.

This subspecies is characterized by its slender, densely rooted stem, short petioles, oblong-elliptic leaf blades with steeply ascending primary lateral veins and often tinged red or purple below, and cylindroid, white spadix with very small flowers.

Anthurium superbum subsp. *brentberlinii* differs from the typical subspecies because of its narrower leaf blades, more slender stem, and more slender spadix with fewer flowers per spiral.

The new subspecies is named in honor of Brent Berlin (Department of Anthropology, University of California at Berkeley), who coordinated all known collections of this taxon.

PERU. AMAZONAS: Río Cenepa, Cenepa area, 250 m, *Kayap 1252* (MO); Cenepa–Quebrada Kayamas, 250 m, *Berlin 513* (MO); above Quebrada Shimpunts, 250–350 m, *Berlin 886* (MO); Huampami, 200–400 m, 4°30'S, 78°30'W, *Berlin 644* (MO, NY); *Kayap 2007* (MO), *Kujikat 162* (MO).

Anthurium tarapotense Engl., Pflanzenr. IV. 23B(Heft 21): 74. 1905. TYPE: Peru. San Martín: Tarapoto, *Ule 5p* (holotype, B). Figures 311, 312.