

dent leaf blades with numerous, prominent primary lateral veins and erect, four-sided petioles. Also distinctive are the short peduncle, large, narrowly ovate, often violet-purple spathe, and yellow spadix.

Anthurium spectabile might be confused with *A. ranchoanum*, which has similar leaves (in dried herbarium material) and a similar inflorescence. *Anthurium ranchoanum*, however, has a subterete petiole and a more or less erect leaf blade in line with the petiole. *Anthurium spectabile* also has an elongate, more or less spreading spathe, while the spathe of *A. ranchoanum* is shorter and usually stiffly erect and hooding the spadix.

Anthurium spectabile is extremely similar to *A. pseudospectabile* from Panama, but the latter has proportionally longer blades with more undulate margins, terete petioles, and occurs in premontane rainforest.

COSTA RICA. ALAJUELA: Cariblanco, *Lent* 3543 (F); NE of Villa Quesada, *Molina et al.* 17287 (F); Naranjo-Aguas Zarcas, Hwy. 15, 8.5 km NE of Villa Quesada, 600 m, *Croat* 46968 (F, K, M, MO, NY, RSA, SEL); Río Sarapiquí at bridge on road to Colonia Virgen del Socorro, 830 m, *Croat* 68303 (MO). HEREDIA: Río Guacimito, Magasay, 500 m, *Chacón* 167 (MO); Río Peje-Río Sardinallito, Atlantic slope of Volcán Barva, 700–800 m, 10°17.5'N, 84°04.5'W, *Grayum* 6719 (MO). LIMÓN: Turrialba-Limón, 11 mi. S of Siquirres, Hwy. 32, 650 m, *Croat* 43325 (MO); Guápiles, *Smith* 4982 (US); road from Río Frio to Limón, vic. of Río Blanco, W of Guápiles, 360 m, 10°12'N, 83°49'W, *Croat* 68428 (MO); Zona Protectora, Barbilla (SE of Squirres), 600–660 m, 10°0'N, 83°28'W, *Grayum et al.* 7939 (CR, MO). PUNTARENAS: cultivated at Las Cruces Botanical Garden, 1,300 m, *Croat* 44431 (MO). SAN JOSÉ: Carrillo Station, *Gómez et al.* 21188 (MO).

Anthurium standleyi Croat & R. A. Baker, *Brenesia* 16(Suppl. 1): 88. 1979. TYPE: Costa Rica. San José: ca. 5 mi. SW of Canaán along gravel road from Rivas, ca. 900 m, *Croat* 43439 (holotype, MO 2582987; isotypes, COL, CR, DUKE, F, K, LE, MEXU, NY, PMA, SEL, US, VEN, W). Figures 306, 307, 320.

Terrestrial; stem to 90 cm long, 2–5 cm diam.; roots descending, greenish to tan, smooth to fuzzy, slightly tapered, 4–12 mm diam.; cataphylls moderately coriaceous, lanceolate, 13.5–30 cm long, obtuse at apex with subapical apiculum, light green, drying tan (B & K red 9/10), persisting semi-intact, eventually as linear fibers. *Leaves* erect to spreading; petioles 43–120 cm long, 7–16 mm diam., stiff, firm, terete to subterete, sometimes weakly flattened adaxially, surface minutely pale-

speckled; geniculum slightly thicker and paler than petiole, 3.5–6.5 cm long; blades subcoriaceous, ovate to ovate-triangular, acuminate at apex (the acumen apiculate, downturned), cordate at base, 29–75 cm long, 19–56 cm wide, broadest at the point of petiole attachment or slightly above it, the margins conspicuously undulate; anterior lobe 23–55 cm long; the posterior lobes 7–21 cm long; sinus spatulate to obovate, often closed with the lobes overlapping, 3.5–12 cm deep, the inner edges turned up; upper surface weakly glossy to semiglossy or matte, dark green, lower surface semiglossy to matte, slightly paler; midrib triangular-raised at base, becoming sharply and narrowly raised toward the apex above, prominently and convexly raised and paler than surface below; basal veins 4–6 pairs, 4–5 coalesced 1–4 cm, two lowermost sunken, others raised above, convexly raised below; posterior rib slightly curved, naked, sharply turned up on the outer margin; primary lateral veins 4–9 per side, departing midrib at 45–80° angle, straight, becoming arcuate-ascending, usually only the uppermost loop-connected, convexly raised above and below, prominently raised below on drying; interprimary veins obscure or occasionally raised in grooves above, raised below; tertiary veins obscure above, slightly darker than surface below; reticulate veins slightly raised on both surfaces on drying; collective vein arising from about the middle of the blade, slightly sunken above, raised and slightly darker than surface below, slightly raised above and below on drying, 4–11 mm from margin. *Inflorescences* erect to spreading, much shorter than leaves; peduncle 29–76 cm long, 4–9 mm diam., 0.3–0.8× as long as petiole, green, terete; spathe erect-spreading to reflexed, subcoriaceous, green to yellow-green (B & K yellow-green 6/7.5), oblong-lanceolate, 10.5–18 cm long, 2–4 cm wide, broadest just above the base, inserted at 60–80° angle on peduncle, narrowly acuminate at apex (the acumen inrolled and hooked), obtuse to rounded at base, the margins meeting at 90–180° angle; stipe 11–70 mm long in front, 6–60 mm long in back; spadix heavily tinged with violet-purple at anthesis, becoming yellowish brown, long-tapered, 10–30 cm long, 7–10 mm diam. near base, 4–6 mm diam. near apex; flowers rhombic to weakly 4-lobed, 3.5–3.6 mm long, 2.9–3.3 mm wide, the sides ± straight to smoothly sigmoid; 5–10 flowers visible in principal spiral, 5–7 in alternate spiral; tepals semiglossy; lateral tepals 1.9–2 mm wide, the inner margins broadly convex; pistils weakly raised, medium green; stigma linear at anthesis, 0.4–0.7 mm long, droplets appearing before stamens emerge; stamens emerging from the base in

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 acumens 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.