

VEN); 5.9–8.6 mi. beyond Los Planes de Hornito, 1,260–1,400 m, *Antonio 5022* (MO), *Croat 48732* (MO), *48777* (MO, US), *49851* (CM, MO), *49930* (B, K, MO, NY, SEL, W), *49942* (B, K, MO, NY, PMA, SEL), *Knapp 4962* (MO), *Knapp & Vodicka 5496* (B, MO); N of Gualaca, 22.7 mi. beyond bridge over Río Estí, 1,400 m, *Antonio 2773* (MO, PMA), *Croat 48674* (B, CAS, CM, COL, DUKE, F, K, MEXU, MO, NY, PMA, RSA, UC, US, VEN); Fortuna Lake–Chiriquí Grande, Fortuna Dam, 4.5–5 km N of dam over Fortuna Lake, 1,100–1,135, *Croat & Grayum 60072* (K, MO).

Anthurium purpureospathum Croat, Selbyana 5(3–4): 328. 1981. TYPE: Panama. Bocas del Toro: Changuinola–Almirante Railroad, Station Milla 7.5, 0–100 m, *Croat 38094* (holotype, MO 2388335; isotypes, B, BM, C, CAS, CM, CR, DUKE, F, GH, IBE, K, LE, M, MISSA, NY, P, PMA, QCA, RSA, S, SEL, US, VEN, W). Figures 263, 264.

Epiphytic, or terrestrial at higher elevations; stem ca. 2 cm diam.; roots dense, descending, brown to greenish, smooth to scurfy, moderately thick, somewhat elongate, 3–5 mm diam.; cataphylls coriaceous to subcoriaceous, narrowly lanceolate, 7–14(25) cm long, obtuse to acuminate at apex, yellowish green, weakly tinged with red, drying dark tan (B & K yellow 5/2.5), persisting semi-intact, eventually as a reticulum of fibers. *Leaves* erect to spreading; petioles 12–37(66) cm long, 4–10 mm diam., quadrangular to D-shaped, flattened to broadly and sharply sulcate adaxially, the margins raised, rounded to 1–3-ribbed abaxially, the surface pale-speckled; geniculum thicker and paler than petiole, 1–2.5 cm long; blades subcoriaceous to moderately coriaceous, oblong-oblancheolate to oblong-elliptic, shortly acuminate at apex (the acumen apiculate), obtuse to acute or attenuate at base, 27–74(94) cm long, 7.5–40 cm wide, broadest at or above the middle, the margins broadly undulate; upper surface matte to semi-glossy, dark green, lower surface glossy to weakly glossy, paler; midrib above obtusely angular-raised to convex at base, becoming narrowly raised toward the apex, below prominently higher than broad and 1-ribbed at base, gradually becoming convexly raised toward the apex, paler than surface above and below; primary lateral veins (6) 11–16 per side, departing midrib at 45–70° angle, arcuate-ascending, loop-connecting in the upper half of the blade, convexly raised in grooves, paler than surface above, prominently and convexly raised and somewhat darker than surface below; interprimary veins sometimes present, almost as conspicuous as primary lateral veins; tertiary veins weakly visible

above, flat to weakly raised and darker than surface below; collective vein arising from about the middle or the base of the blade, weakly sunken above, raised and darker than surface below, less prominent than primary lateral veins, 4–8(13) mm from margin. *Inflorescences* erect to spreading; peduncle 3–38(50) cm long, 6–20 mm diam., rarely shorter than, mostly equaling or slightly longer than petiole, purplish or green, subterete; spathe subcoriaceous, purple to purplish with green mottling especially near the base at the center, oblong to narrowly ovate, 4.5–17.5 cm long, 1.5–4 cm wide, broadest just above the base, acute at apex (the acumen cuspidate), obtuse to rounded at base; spadix dark violet-purple (B & K purple 2/7.5), cylindrical to slightly tapered, (4)5–22 cm long, 3–10 mm diam. near base, 2–5 mm diam. near apex; flowers rhombic to weakly 4-lobed, 2–2.3 mm long, 2.5–3 mm wide, the sides smoothly to jaggedly sigmoid; ca. 14 flowers visible in principal spiral, ca. 7 in alternate spiral; tepals matte with small, scattered droplets; lateral tepals 1.4–1.6 mm wide, the inner margins flat against pistil; pistils slightly raised, purple becoming green and finally orange; stigma linear, ca. 0.5 mm long, droplets persisting for 4–10 days, drying with exerted papillae 4–6 days before stamens emerge; stamens emerging slowly from the base, held tightly in a circle around pistil; filaments transparent, flattened, soon retracting, holding anthers at level of tepals, 0.7–1 mm long, ca. 0.7 mm wide; anthers pale orange; thecae ellipsoid, usually not divaricate; pollen golden yellow (B & K yellow 8/2.5) fading to creamy white. *Inflorescence* erect to spreading; spathe usually persisting; spadix 9–19 cm long, to 4 cm diam.; berries orange, red-orange to red (B & K red 6/7.5), narrowly ovoid, acute with minute, mammilliform style at apex, to 10 mm long; mesocarp pasty, transparent; seeds 1 or 2 per berry, pale greenish yellow, ca. 4 mm long, 2 mm diam.

This species is known only from Panama and occurs principally from near sea level to 1,500 m in Bocas del Toro and Chiriquí provinces in wetter parts of tropical moist and premontane wet forest. A collection from San Blas (*de Nevers 4207*) is out of range, but does not differ significantly from other collections from western Panama.

Anthurium purpureospathum is distinguished by its rosulate habit, large, thin, semi-intact cataphylls, more or less oblanceolate leaf blades, almost quadrangular petioles which are often three-ribbed abaxially, its generally short peduncles, usually violet-purple, reflexed spathe, usually short violet purple spadix, early-emergent pistils, and by

its long, sharply pointed, orange to red-orange berries.

This species is most closely related to *A. upalaense*, which differs in having leaves with the collective vein arising from above the middle of the blade, a generally longer peduncle, and a more long-tapered spadix.

An odd collection is *McPherson 8572*, because of its very large size. This collection counts for the parenthetical measurements for cataphyll, petiole, blade, and peduncle lengths in the description.

PANAMA. BOCAS DEL TORO: 15 km S of Changuinola, 300–500 m, *Antonio 3148* (MO); Ojo del Agua, 7 km W of Almirante, 190–220 m, *Croat 38179, 38180* (MO); Milla 7.5, hill above station, 30 m, *Croat & Porter 16416* (MO); 100 m, *Croat 38094* (B, BM, C, CAS, CM, CR, DUKE, F, GH, IBE, K, LE, M, MISSA, MO, NY, P, PMA, QCA, RSA, S, SEL, US, VEN, W); 10 mi. NW of Almirante, 0–100 m, *D'Arcy 11207* (MO); Almirante-Ojo del Agua, 3–6 km W of Almirante, 30–200 m, *Croat 38214* (MO, PMA); Chiriquí Lagoon, Shepherd Island, *von Wedel 2721* (GH, MO); Fortuna Road, Chiriquí Grande-Fortuna, 13.2 mi. W of Chiriquí Grande, 310 m, *Croat & Grayum 60145* (B, MO); 10 mi. from Continental Divide, 120 m, 8°55'N, 82°10'W, *McPherson 8572* (MO); 175 m, *Croat 66820* (MO); Isla Bastimentos, 1–2 km N of Trouble Hole, 30–100 m, *Peterson & Annale 6855* (US); Isla Colón, 0–120 m, *von Wedel 125* (MO), 569 (GH, MO); Río Changuinola, 1 mi. S of Changuinola, *Lazor & Tyson 2661* (MO); Río Cricamola, Finca St. Louis-Konkintoe, 10–50 m, *Woodson et al. 1889* (MO, NY); Río Guarumo, 5 mi. S of Chiriquito, *Lewis et al. 1985* (MO, NY); Water Valley, *von Wedel 708* (MO), 774 (GH, MO). CHIRIQUÍ: Cerro Colorado, along mining road 24 mi. above bridge over Río San Félix, N of village San Félix, 1,430–1,500 m, *Croat 48483* (MO); along mining road 18–27 mi. off of Pan-Am Hwy., above Chamí or turnoff to Escopeta, above San Félix, 1,200–1,500 m, *Croat 33139* (CM, MO, NY); Bocas Road, 1,500 m, *Folsom & Collins 1835* (MO); 28 mi. above San Félix, 9–10 mi. above turnoff to Escopeta, 1,200–1,500 m, *Croat 33257* (MO, PMA); Fortuna Road, Chiriquí Grande-Fortuna, 7.7 mi. W of Chiriquí Grande, 1.5 mi. W of Punta Peña, 80 m, *Croat & Grayum 60090* (MO). SAN BLAS: El Llano-Cartí Road, Nugandí, 19.1 km from Interamerican Hwy., 350 m, *de Nevers 4207* (MO).

Anthurium ranchoanum Engl., Bot. Jahrb. Syst. 25: 421. 1898. TYPE: Costa Rica. Heredia: Rancho Flores in territorio Bacha, Volcán Barba, 2,100 m, *Pittier 2295* (holotype, B; isotypes, BR, G). Figures 262, 265, 266.

Anthurium valerii Standley, Publ. Field Mus. Nat. Hist., Bot. Ser. 18: 137. 1937. TYPE: Costa Rica. Heredia: Vara Blanca, *Valerio 1600* (holotype, F).

Anthurium vinicolor Standley & L. O. Williams, Ceiba 3: 106. 1952. TYPE: Costa Rica. San José: Cordillera de Talamanca near Copey, 1,800 m, *L. O. Williams 16538* (holotype, EAP; isotypes, F, US).

Epiphytic or terrestrial; stem to 100 cm long, ca. 1.5–2 cm diam.; leaf scars occasionally conspicuous, 0.7–1 cm high, 1.5–1.7 cm wide; roots moderately numerous, descending, greenish, pubescent, sometimes smooth, moderately thick and elongate, blunt, 3–7 mm diam.; cataphylls subcoriaceous, 6–30 cm long, subrounded at apex with subapical apiculum, green tinged with red, drying tan (B & K yellow-red 9/2.5), persisting semi-intact, eventually deciduous. *Leaves* spreading; petioles 11–150 cm long, 5–15 mm diam., erect-spreading, subterete to nearly D-shaped, shallowly and narrowly sulcate to flattened adaxially, rounded abaxially, the surface faintly pale-speckled; geniculum slightly thicker and paler than petiole, 1.5–3 cm long; blades moderately coriaceous, somewhat pliable, narrowly ovate to ovate-deltoid to ovate-triangular, acuminate at apex (the acumen apiculate), shallowly or deeply lobed at base, 17–64 cm long, 9–34 cm wide, broadest between the base and middle, the margins undulate; anterior lobe 12–29 cm long, the posterior lobes 7–13 cm long; sinus arcuate to parabolic; both surfaces semiglossy to glossy, medium to dark green above, much paler below; midrib bluntly angular to convexly raised above (rarely acutely angular), much paler than surface, round-raised at base, becoming prominently and convexly raised toward the apex, paler than surface below; basal veins 3–6 pairs, 1st usually free to base, 3rd to 6th coalesced 1–2 cm, 4th to 6th coalesced 3.5–6 cm, raised above and below; posterior rib naked, turned up on outer margin; primary lateral veins 4–9 per side, departing midrib at 40–50°, broadly arcuate, weakly raised above and below, more so below; interprimary veins flat above, weakly raised below, less conspicuous than primary lateral veins; tertiary veins weakly visible above and below; collective vein arising from one of the primary lateral veins, sometimes from the first basal vein, raised to weakly sunken above, raised below, 2–10 mm from margin. *Inflorescences* erect to erect-spreading, much shorter than leaves; peduncle 13–100 cm long, 5 mm diam., 0.6–0.7 × as long as petiole, green to purplish, terete; spathe spreading, hooded over the spadix, recurled at apex, subcoriaceous, green to green tinged with purple to purple or maroon, lanceolate to narrowly ovate, 4–35 cm long, 2–6.5 cm wide, broadest near the base, acute and apiculate at apex (the acumen tightly inrolled), truncate at base; stipe 1.6 cm long in front, 1.3 cm long in back; spadix pink to red to dark violet-purple to maroon, weakly tapered, 3.5–19 cm long, 9–15 mm diam. near base, 6–9 mm diam. near apex; flowers rhombic, 2–3.2 mm long, 2.6–