

per side, departing midrib at 60–70° angle, slightly arcuate to the collective vein, slightly raised above and below; interprimary veins numerous, almost as conspicuous as primary lateral veins; tertiary veins scarcely raised above and below, more prominent below; collective vein arising from near the base, nearly as conspicuous as primary lateral veins, 5–9 mm from margin. *Inflorescences* erect-spreading; peduncle 40 cm long, ca. 5 mm diam., ca. 4× as long as petioles, terete; spathe reflexed, subcoriaceous, green, oblong-lanceolate, at least 11 cm long, 1.5 cm wide, broadest near base, inserted at 45° angle on peduncle, apex not seen, the base acute; spadix dark reddish, slightly tapered, ± straight, 17 cm long, 4 mm diam. near base, 3 mm diam. near apex; flowers rhombic, 2.4–2.8 mm long, 1.6–2 mm wide, the sides smoothly sigmoid; 7–8 flowers visible in principal spiral, 5–6 in alternate spiral; tepals ± smooth; lateral tepals ca. 1 mm wide, the inner margins straight, the outer margins 2–4-sided; anthers 0.2 mm long, 0.3 mm wide; thecae slightly divaricate. *Infructescence* not seen.

A member of series *Multinervia*, *A. narinoense* is known only from the type collection made in Nariño (hence the name), Colombia, at 900 to 1,000 m in pluvial forest.

*Anthurium narinoense* is distinguished by its large leaves (for the series), which dry yellow-green, and its slender, tapered spadix. It is apparently not closely related to any other species, but somewhat resembles *A. fasciale* and *A. santiagoense* from the eastern slopes of the Andes in Ecuador, which both have a more stubby spadix with more flowers in the principal spiral.

*Anthurium narinoense* is unusual in being the only species of *Pachyneurium* known from pluvial forest.

COLOMBIA. NARIÑO: Junín-Barbacoas, 2–10 km N of Junín, 900–1,000 m, 1°30'N, 78°10'W, Gentry et al. 55343 (MO, PSO).

***Anthurium nervatum*** Croat, Monogr. Syst. Bot.

Missouri Bot. Gard. 14: 141. 1986. TYPE: Panama. Veraguas: valley of Río Tercero Brazo, beyond Escuela Agrícola Alto Piedra, above Santa Fe, 500–700 m, Croat 27329 (holotype, MO 2253314; isotypes, F, K, PMA, US). Figures 198, 202.

Epiphytic, occasionally terrestrial; stem 10–75 cm long, 2.5–6 cm diam.; leaf scars 1–1.5 cm high, 2–3.5 cm wide; roots few, descending, greenish, pubescent, moderately thick and short, slightly

tapered, 3–7 mm diam.; cataphylls subcoriaceous, lanceolate, 16–35 cm long, rounded to emarginate at apex with subapical apiculum ca. 5 mm long, green, drying tan (B & K yellow-red 9/10), persisting semi-intact, eventually as a reticulum of fibers. *Leaves* erect to spreading; petioles 18–100 cm long, 7–14 mm diam., bluntly to sharply quadrangular to D-shaped or subterete, prominently to weakly sulcate or flattened adaxially, the margins flat or raised, rounded abaxially, the surface pale-speckled; geniculum thicker and paler than petiole, becoming fissured transversely with age, 1.5–5 cm long; blades moderately to thickly coriaceous, triangular to ovate-triangular, ovate-elliptic, acute to acuminate at apex (the acumen weakly apiculate), subcordate to cordate at base, sometimes decurrent on petiole, 27–98 cm long, 14.5–46 cm wide, broadest in the lower fourth of the blade, the margins broadly undulate; anterior lobe 25.5–90 cm long, the posterior lobes 4–19 cm long, directed downward and sometimes inward or outward; sinus arcuate with blade decurrent on petiole, to spatulate; upper surface matte to semiglossy, dark green, lower surface semiglossy, slightly paler; midrib bluntly angular-raised, becoming acutely to obtusely raised, and then weakly sunken at apex above, prominently and convexly raised below, paler than surface above and below; basal veins 3–6 pairs, often free to base, 2nd and 5th sometimes coalesced 1.5–2 cm, convexly raised above and below (less so below); primary lateral veins 19–25 per side, departing midrib at 50–60° angle, straight or weakly arcuate to the collective vein, prominently to weakly convexly raised above (more so below), paler than surface; interprimary veins sometimes present; tertiary veins obscure to weakly visible above, flat and darker than surface below; collective vein arising from one of the lowermost primary lateral veins or 1st to 2nd basal vein, weakly sunken above, weakly raised and darker than surface below, 1–5 mm from margin. *Inflorescences* erect to spreading; peduncle 10–35 cm long, 8–10 mm diam., 0.2–0.7× as long as petiole, green, terete; spathe reflexed, sometimes recurved, coriaceous to subcoriaceous, green to green heavily tinged with purple-violet to purplish or maroon, lanceolate to lanceolate-elliptic, 10–33 cm long, 2.5–5.5 cm wide, broadest just above the base, inserted at 30° angle on peduncle, long-acuminate at apex (the acumen inrolled), rounded to cordate at base; spadix green to purple to maroon, slightly tapered, (6)18–28 cm long, 1–2 cm diam. near base, 8–10 mm diam. near apex; flowers rhombic to weakly 4-lobed, 2.2–3.2 mm long, 2.0–3.1 mm wide, the sides weakly to jaggedly sigmoid; 10–15

flowers visible in principal spiral, 8–20 in alternate spiral; tepals matte, conspicuously punctate, minutely papillate; lateral tepals 0.8–1.6 mm wide, the inner margins broadly convex to concave when dried, the outer margins straight; pistils not emergent except when dried, green tinged with violet-purple; stigma linear, slitlike, 0.5–1 mm long; stamens emerging from the base, lateral stamens followed by alternates in rapid succession, the laterals preceding the alternates by 5–8 spirals, the 3rd stamen preceding the 4th by 6–8 spirals, held over and obscuring pistil; filaments red-violet, 1.4–1.6 mm long; anthers yellow, 0.4–0.7 mm long, 0.5–0.9 mm wide; thecae narrowly oblong to ovoid-oblong, weakly or not at all divaricate; pollen orange fading to tan or white. *Infructescence* spreading to pendent; spadix to 50 cm long, to 5 cm diam.; berries orange, oblong-ellipsoid to oblong-ovoid, acute at apex, the tip relatively blunt, to 14 mm long, 3.5 mm diam.; mesocarp with linear to punctiform raphide cells; seeds 2 per berry, oblong-ellipsoid to ellipsoid, somewhat flattened, 4.5–5 mm long, 2.7–3.2 mm diam., 1–1.5 mm thick, with a thin appendage at apex only.

*Anthurium nervatum* is endemic to Panama in Bocas de Toro, Coclé, Chiriquí, and Veraguas provinces at (130)500 to 2,100 m in tropical wet, premontane rain, and lower montane wet forest life zones.

This species is recognized by its long, triangular, shallowly lobed to subcordate, moderately thick leaf blades with numerous primary lateral veins, its usually long-tapered, green to maroon spadix, and by its lanceolate, coriaceous spathe that is deep maroon on the inner surface, green heavily tinged with maroon on the outer surface and often forms a loose spiral at anthesis.

*Anthurium nervatum* is most easily confused with *A. ranchoanum*, but that species has a shorter spadix with an erect, green spathe and larger flowers which are fewer per spiral. It may also be confused with *A. colonicum*, but that species has early exerted, acute pistils and fewer primary lateral veins.

One collection from El Valle in Coclé Province (Croat 37443) is probably also this species, but has a smaller, more ovate-triangular, more coriaceous blade with the posterior lobes sharply turned upward, and a deeper sinus; it also has a green rather than maroon spadix.

PANAMA. BOCAS DEL TORO & CHIRIQUÍ: Cerro Colorado, Folsom *et al.* 4706 (MO); trail into Bocas and in woods on Pacific slope, from Chamí station to ca. 9 mi. along road, 1,100–1,750 m, 8°35'N, 81°54'W, Hammel &

Trainer 14919 (MO, PMA). CHIRIQUÍ: above Santa Fe along mining road 18–27 mi., off Pan-Am Hwy. above Chamí or turnout to Escopeta, 1,200–1,500 m, Croat 33145 (DUKE, F, MO, PMA); along mining road 31.6 km beyond bridge over Río San Félix, 10.6 km beyond turnout to Escopeta, 1,690 m, Croat 37177 (MO), 37169 (MO, PMA); upper mining road 20–28 mi. from San Félix, Continental Divide, 1,200–1,500 m, Croat 33305 (MO), 33394 (MO, RSA, US); along mining road 20 mi. above bridge over Río San Félix, near village of San Félix, 750 m, Croat 48459 (MO); Cerro Pate Macho, 1,500–1,900 m, Stein *et al.* 1257 (MO); SE slopes, trail from Río Palo Alto, 4 km NE of Boquete, 1,700–2,100 m, Sysma *et al.* 4830 (MO). COCLÉ: Cerro Caracoral, Duke & Dwyer 15118 (NY), Kirkbride 1096 (MO, NY); Cerro Moreno, Molejón-Coclecito, 13 km NW of Cascajal, 130–250 m, 8°46'44"N, 83°1'54"W, Davidge & Hamilton 23713 (B, MO); El Copé Region, Alto Calvario, 800–900 m, Folsom & Jaslon 2691 (MO); El Copé, W of sawmill, Hammel 2408 (MO); Continental Divide, lumber road N of El Copé, 10 km above El Copé, 2.2 km N of sawmill, 750–930 m, Croat 44717, 49169 (MO, PMA); El Valle Region, El Valle de Antón, La Mesa, Croat 37443 (CAS, CM, F, LE, KYO, M, MO, PMA, US). VERAGUAS: Santa Fe Region, vic. Escuela Agrícola Alto Piedra, 500–735 m, Croat 33987 (CAS, MO, US), 34244 (MO, PMA), Croat & Folsom 34134 (MO); 1,150–1,450 m, McPherson 12070 (MO); Cerro Tute, 750–1,450 m, Croat 48912, 48925 (MO, PMA), Knapp & Dressler 5415 (MO, US), 5446 (MO), Knapp & Kress 4369 (MO), Knapp & Sysma 2475 (MO), Sysma *et al.* 4590 (MO); Río Tercero Brazo, beyond school 500–700 m, Croat 27329 (F, K, MO, PMA, US).

*Anthurium nizandense* Matuda, Bol. Soc. Bot. Mexico 24: 35, fig. 1. 1959. TYPE: Mexico. Oaxaca: Nizanda near the Isthmus of Tehuantepec, 16°40'N, 95°02'W, MacDougall s.n. (holotype, MEXU). Figures 207, 208.

*Anthurium kruseanum* Matuda, Anales Inst. Biol. Univ. Nac. Mexico 36: 107, fig. 1. 1966. TYPE: Mexico. Guerrero: La Junta (at junction of Río Omilán and Río Papagayo) S of Tierra Colorada, Kruse 881 (holotype, MEXU).

Usually terrestrial or epilithic; leaf scars 0.7–1.2 cm high, 1.3 cm wide; roots moderately numerous, descending, greenish to tan, smooth to somewhat pubescent, moderately elongate, tapered; cataphylls subcoriaceous, 3–7 cm long, rounded and minutely apiculate at apex, drying dark brown, persisting semi-intact, eventually as a reticulum of fibers. Leaves erect-spreading; petioles 6–24 cm long, (3)5–6 mm diam., quadrangular to D-shaped to subterete, flattened to broadly and sharply sulcate adaxially, the margins sharply raised, rounded abaxially, the surface pale-speckled, sometimes tinged with red-violet; geniculum slightly paler and thicker than petiole, 1–1.5 cm long; blades subcoriaceous, obovate-elliptic to elliptic, acute to abruptly acuminate at apex (the