

*Dunsterville 113258* (F, MO, U, VEN), *Steyermark et al. 117258* (MO, VEN); Cerro Marajanu, Alto Caura, 550 m, *Cardona Puig 2959* (MO, VEN); Cerro Sarisarinama, Meseta de Jaua, 700 m, 4°41'N, 64°13'W, *Steyermark et al. 108992* (VEN); Chimantá Massif, Base Camp—slopes above valley of Río Tirica, SW-facing slopes of Chimantá-tepuí (Torono-tepuí), 1,000–1,400 m, *Steyermark 75378* (F, NY, VEN); NW part of Abacapa-tepuí, 850–1,100 m, *Steyermark 75100* (F, MO, NY); Auyán-tepuí, Guayaraca, 1,000 m, *Bogner 1534* (M, MO), *Steyermark 94210* (VEN); Dto. Piar, Pie de la Roca—Guayaraca, Auyán-tepuí, 600–850 m, 5°43'N, 62°31'W, *Davidse & Huber 22658* (MO); lower part of Río Caroni, Sabana de Arekuna, 6°31'N, 62°53'W, *Prance & Huber 28334* (MO); Río Icabarú and Río Hacha, 450–850 m, *Bernardi 2827* (NY); Río Paragua, Salto de Auraima, 275 m, *Killip 37358* (US, VEN); Sierra Ichun, N of Salto María Espuma (Salto Ichun), near Río Ichun (tributary of Río Paragua), 625–725 m, 4°46'N, 63°18'W, *Steyermark 90240* (BH, US); Dto. Roscio, 1 km N of Río Samay, 600–800 m, 4°25'N, 61°37'W, *Holst & Liesner 2479* (MO); 7 km NW of Icabarú, 400 m, 4°20'N, 61°51'W, *Steyermark et al. 127301* (B, MO); Mpo. Urucuru, Avequí, “Ciudad Muerte,” 500 m, *Bernardi 1687* (NY); Mpo. Urucuru, Río Hueque, Cerro del Papelou, 700 m, *Bernardi 1641* (NY).

***Anthurium bradeanum*** Croat & Grayum, sp. nov. TYPE: Panama. Coclé: Cerro Moreno, Molejón—Coclecito, 13 km NW of Cascajal, 130–250 m, *Davidse & Hamilton 23715* (holotype, MO 3039173; isotypes, B, K, RSA). Figures 63, 64.

Planta epiphytica; cataphyllum lanceolatum, acuminatum, persistens semi-intactum, demum fibris linearibus findens; lamina elliptica ad oblanceolato-elliptica vel ovato-elliptica, (20)25–60 cm longa, 8.5–21 cm lata; nervis primariis lateralibus (5)10–15 utroque. Pedunculus 21–58 cm longus, angulatus; spathe ovata, deflexa, cucullata, viridis, 2.5–6(9) cm longa, 2.1–4 cm lata; spadix flavovirens, citreus vel cremeus, clavatus, 1.9–5 cm longus, 8–10 mm diam. Fructus luteus ad albus, ovoides.

Epiphytic; stem very short, 0.5–1.5 cm diam.; roots moderately dense, descending, green, pubescent, moderately slender and elongate, tapered, 2–4 mm diam.; cataphylls subcoriaceous, lanceolate, 6–9 cm long, acuminate at apex, light green, drying tan (B & K red 9/10), persisting semi-intact, eventually as linear fibers. *Leaves* erect-spreading to spreading; petioles 6–32(40) cm long, 5–7 mm diam., ± quadrangular, occasionally D-shaped, flattened to rounded adaxially, the margins sharply raised but not winged, sharply 2–3-ribbed abaxially (sometimes rounded), the surface pale-speckled; geniculum paler and thicker than petiole, becoming fissured transversely with age, 0.8–2.5 cm long; blades subcoriaceous, elliptic to oblanceolate-elliptic to obovate-elliptic, less than 5× longer than wide, long-acuminate at apex (the acumen apiculate), acute to abruptly attenuate at base, (20)25–

60 cm long, 8.5–21 cm wide, broadest at or above the middle, the margins weakly undulate, both surfaces glossy to semiglossy, medium green above, paler below, drying green, semiglossy to matte; midrib flat at base, becoming convexly raised toward the apex, pale-speckled, paler than surface above, sharply 2-ribbed and higher than broad at base, becoming convexly raised toward the apex, paler than surface below; primary lateral veins (5)10–15 per side, departing midrib at 30–40° angle, ± straight to the collective vein or weakly arcuate-ascending, moderately sunken, becoming weakly sunken toward the margin above, prominently and convexly raised below, paler than surface above and below; tertiary veins weakly visible above, slightly darker than surface below; collective vein arising from near the base or about the middle of the blade, sunken above, raised below, less prominent than primary lateral veins, 1–3 mm from margin. *Inflorescences* erect-spreading to spreading, usually shorter than leaves; peduncle 21–58 cm long, equaling or 2–3× longer than petioles, several-angled to subterete with prominent sharp rib abaxially, conspicuously pale-speckled; spathe boat-shaped, about as long as spadix and hooded over it (directed at ca. 180° angle to peduncle), coriaceous, dark green, somewhat discolored along margins, ovate, cucullate, 2.5–6(9) cm long, 2.1–4 cm wide, inserted at 50–70° angle on peduncle, abruptly to gradually acuminate at apex, rounded to truncate at base, decurrent on petiole; spadix deflexed, pale yellow-green to lemon-yellow to creamy-white, (occasionally brownish), sessile, clavate, 1.9–5 cm long, 8–10 mm diam., directed at ca. 90° angle from peduncle; flowers 4-lobed, 1.6–2.2 mm long, 2–2.5 mm wide, the sides jaggedly sigmoid; 16–20 flowers visible in principal spiral, 13–16 in alternate spiral; tepals matte, conspicuously papillate; lateral tepals 0.6–0.9 mm wide, the inner margins straight to convex and turned up against pistil; pistils emergent to 0.5 mm, white to pale greenish white; stigma 0.2 mm long, brush-like, droplets appearing 2–3 days before stamens emerge, persisting for 2 weeks; stamens emerging in a complete sequence, emerging well above tepals then retracting; lateral stamens soon followed by 3rd and 4th stamens, arranged in tight cluster above pistil; filaments whitish, exerted, 0.3–1 mm long, 0.2–0.3 mm wide; anthers pale yellow, 0.3–0.4 mm long, 0.5–0.6 mm wide; thecae ellipsoid; pollen pale yellow fading to white, sweet-scented. *Infructescence* spadix 5–11 cm long; berries greenish yellow to white (also reported as reddish), obovoid, sharply pointed at apex, 4–4.3 mm long, 2.5 mm diam.; seeds 2 per berry, yellowish brown,

oblong-ovoid, flattened, 3.2–3.5 mm long, 1.5–1.9 mm diam., 1.1–1.2 mm thick.

*Anthurium bradeanum* ranges from Nicaragua to Panama in tropical wet forest life zones from near sea level to usually 450 m, rarely to 800 m.

This species is distinguished by its long, sharply margined petioles, its more or less elliptic leaf blades, its cucullate, coriaceous, ovate spathe, its deflexed, short, clavate, lemon-yellow to white spadix, and yellow to white fruits.

*Anthurium bradeanum* may be confused with *Anthurium spathiphyllum* where they occur together, such as at the La Selva Biological Station in Costa Rica. Both species have a short clavate spadix, but *A. spathiphyllum* differs in having narrower leaves with 20–30 prominently sunken primary lateral veins (vs. 5–15 scarcely sunken veins in *A. bradeanum*). In addition, *A. spathiphyllum* commonly has three-sided petioles and a lanceolate spathe that is about twice as long as the spadix. In *A. bradeanum*, the spathe is ovate and as long as the spadix.

The species is named in honor of Alexander Curt Brade, who made the first collection of the species in Costa Rica during 1908–1910. The species was not recollected until 1970, when I collected it in Panama at Guásimo in Colón Province.

The species was mistakenly called *A. cuneatisimum* (Engl.) Croat in the revision of *Anthurium* for Central America (Croat, 1983, 1986). That name is now considered synonymous with *A. consobrinum* Schott.

COSTA RICA. ALAJUELA: 15 km WNW of Quesada by air, 1 km W of Jaillos, 150–200 m, 10°23'N, 84°33'W, *Liesner et al.* 15175 (MO); 22 km NE of Quesada by air, 4 km W of Muelle San Carlos, 10°28'N, 84°30'W, *Liesner* 14112 (CR, K, MO); San Carlos, vic. Florencia, 250 m, *Haber et al.* 1854 (MO); between San Miguel and El Pílon, 600 m, 10°43'30"N, 85°00'30"W, *Herrera* 2069 (CR, DUKE, MO); Llanuras de San Carlos, *Brade* 2539 (BR); Cañas–Upala Road, Río Zapote, 3–4 km NNE of Bijagua 400–450 m, *Burger & Baker* 9820 (MO), *Croat* 36275, 36296 (MO); 13.8 km N of Bijagua, 100–150 m, *Croat* 36454 (B, C, DUKE, F, K, M, MBM, MO, P, QCA, S, U, US); NNE of Bijagua, 200 m, *Croat* 36480A (MO); Río Peje; Ciudad Quesada–Florencia, 1 km E of Florencia, 250 m, 10°21'N, 84°28'W, *Hammel et al.* 14032 (MO, US); Monteverde Reserve, Peñas Blancas river valley, 800 m, 10°20'N, 84°40'W, *Haber et al.* 5116 (MO). HEREDIA: Puerto Viejo Region, Río Sucio, 20 m, *Croat* 35751 (CAS, MO); San José–Puerto Viejo, vic. of Chilamante, 11.6 mi. N of Cariblanco, 10°27'N, 84°05'W, 100 m, *Croat* 68361 (MO); Finca La Selva, *Christenson* 1532 (MO). LIMÓN: between Barra del Colorado and ocean beach, 0–2 m, 10°47'N, 83°35'W, *Stevens* 24092 (MO); 3.5 km S of Islas Buena Vista in the Río Colorado, 16 km SW of Barra del Colorado, 10–

120 m, 10°39'N, 83°40'40"W, *Davidse & Herrera* 31243 (K, MO); Cerro Coronel, E of Río Zapote, 10–40 m, 10°40'N, 83°40'W, *Stevens* et al. 24723 (MO); Reserva Biológica Hitoy Cerere, Río Cerere–Quebrada Barrera, SW of Valle La Estrella, 550 m, 9°39'N, 83°02'W, *Grayum et al.* 5810 (MO); 100–250 m, *Gómez et al.* 23663 (CR, MO); Río Colorado, 2 km upstream from downstream branch of Caño Bravo, 5 m, 10°43'N, 83°40'W, *Stevens* 24018 (MO). NICARAGUA. ZELAYA: 1 km N of Barra de Punta Gorda, 10 m, 11°31'N, 83°46'W, *Moreno* 13274 (MO); Río Punta Gorda, Atlanta, landing field, 10 m, 11°34'N, 84°1'W, *Moreno & Sandino* 12768 (MO); Atlanta, SE of “La Richard,” 30 m, 11°32'N, 84°5'W, *Moreno & Sandino* 13117 (MO); Monkey Point, 1.5 km from Caño El Pato, 10 m, 11°35'N, 83°42'W, *Moreno* 12373, 12422 (MO); Caño Monte Cristo, Las Faldas, 40–60 m, 11°36'N, 83°51'W, *Moreno* 14810 (MO); Río Serrano, 1 km of Colonia Serrano, 70–80 m, 11°34'N, 84°21'–22'W, *Sandino* 3446 (MO). PANAMA. COCLÉ: Cerro Moreno, Molejón–Coclecito, 13 km NW of Cascajal, 130–250 m, 8°46'44"N, 80°31'54"W, *Davidse & Hamilton* 23715 (B, K, MO, RSA); El Copé Region, N of El Copé, Limón, *Folsom* 5815 (MO, PMA). COLÓN: Río Miguel, Guásimo, *Croat* 9902 (MO, PMA, SEL).

***Anthurium brenesii*** Croat & R. A. Baker, *Brenesia* 16(Suppl. 1): 28. 1979. TYPE: Costa Rica. Alajuela: along Hwy. 15 between Naranjo and Quesada, 3.2 mi. N of Zapote, 1,560 m, *Croat* 46923 (holotype, MO 2682420; isotypes, COL, CR, DUKE, F, GH, K, MEXU, NY, P, PMA, RSA, SEL, U, US, VEN). Figures 65, 67–69.

Epiphytic; stem usually pendent, less than 30 cm long, 1.5–2.5 cm diam.; roots sparse, descending, green to brown, pubescent, thick, elongate, slightly tapered, 5–7 mm diam.; cataphylls moderately coriaceous, weakly ribbed near apex, 10–25 cm long, acuminate at apex, drying light brown, persisting semi-intact, eventually as a reticulum of fibers. *Leaves* spreading to pendent; petioles 11.5–45 cm long, 3–6 mm diam., terete, rounded to obtusely and obscurely sulcate adaxially, the surface pale-speckled; geniculum somewhat thicker than petiole, 1.5 cm long; blades coriaceous, oblong-elliptic to oblong, acuminate at apex (the acumens minutely inrolled), acute to obtuse to narrowly rounded at base, 16–68 cm long, 4.3–10.3 cm wide, broadest at or near the middle, the margins weakly undulate; both surfaces matte to weakly glossy, dark green above, paler below, drying yellowish green; midrib bluntly angular-raised above, pale-spotted in lower half, prominently convexly raised, much paler than surface below; primary lateral veins 13–16 per side, scarcely more conspicuous than interprimary veins, departing midrib at 35–45° angle, broadly arcuate, weakly sunken above, weakly raised and darker than surface be-