

low; tertiary veins obscure above and below; collective vein arising from the base, slightly sunken above, raised and darker than surface below, equally as prominent as primary lateral veins, 2–5 mm from margin. *Inflorescences* shorter than leaves; peduncle (10)28–43 cm long, 4–5 mm diam., 2–3/4× as long as petiole, terete; spathe erect and somewhat hooded over the spadix, moderately coriaceous, medium green, sometimes tinged with red or violet-purple, ovate to ovate-elliptic, 5.5–8.5 cm long, 3.5–5.5 cm wide, broadest just above the base or near the middle, inserted at 25–40° angle on peduncle, acute to rounded at apex (the acumen apiculate), cordate and somewhat clasping at base; spadix green to red-brown to red-violet to purple, short-cylindroid, somewhat stubby, 3.2–8 cm long, 6–8 mm diam.; flowers ± square to weakly 4-lobed, 1.7–2.5 mm in both directions, 6–10 flowers visible in either spiral; lateral tepals 0.8–1.2 mm wide, the inner margins straight to broadly convex, the outer margins 2–3-sided; pistils scarcely emergent; stigma oblong, 0.5–0.6 mm long; stamens held just above tepals; filaments short, translucent, soon retracting to hold anthers at level of the tepals; anthers orange, (0.4)0.6 mm long, (0.5)0.8 mm wide; thecae ovoid-ellipsoid, slightly divaricate; pollen orange, faintly spicy-scented. *Infructescence* spreading to pendent; spathe usually dried; spadix to 9 cm long, 2 cm diam.; berries orange (B & K yellow-red 7/5), obovoid, rounded at apex, 9–11 mm long, 5–7.5 mm diam.; pericarp thin, lacking raphide cells; mesocarp juicy, with sparse, thick sclereids; seeds 2 (rarely 1) per berry, light brown, 3–4.5 mm long, 2.2–3 mm diam., 1.8–2.2 mm thick, enveloped by an almost translucent envelope extending to 10 mm long and as wide as seed.

Anthurium brenesii is known from 800 to 1,560 m on the Atlantic slope in the Cordillera Volcánica and the Cordillera Central in the provinces of Alajuela and Guanacaste in a premontane rainforest life zone.

This species is distinguished by its oblong to oblong-elliptic leaf blades with rather obscure primary lateral veins and the collective vein arising from the base, and by its broad spathe, cylindroid spadix, and orange berries.

Anthurium brenesii is related to *A. protensum*, with which it shares similar leaf texture and cataphylls and a similar altitudinal range. It differs from that species by its abruptly acuminate leaf blades, its short, broad spathe which is subcordate at the base, and its shorter, broader spadix. It is also similar to *A. prolatum*, but differs in having much shorter, broader leaves and a shorter, stubbier spa-

dix and an erect, more or less ovate spathe. In contrast, *A. prolatum* has a spadix many times longer than broad (more than 50×) and a linear-lanceolate spathe.

COSTA RICA. ALAJUELA: between Naranjo and Quesada, 3.2 mi. N of Zapote on Hwy. 15, *Croat 46923* (COL, CR, DUKE, F, GH, K, MO, NY, P, PMA, RSA, SEL, U, US, VEN); La Palma de San Ramón, *Brenes 5738* (F); Reserva de San Ramón, 800–1,000 m, 10°12'53"N, 84°36'28"W, *Herrera & Mora 180* (CR, MO), *Herrera et al. 411* (B, CR, MO); Cordillera Central, ca. 15 km N of Zarcero, *Williams et al. 29034* (F). GUANACASTE: Santa Elena-Laguna de Arenal, 4 km N of El Dos de Tilarán, 1,000 m, 10°23'N, 84°53'W, *Hammel et al. 15134* (MO), *Haber & Bello 6549* (MO); Parque Nacional Rincón de la Vieja, SE slopes of Volcán Santa María, above Estación Santa María, 900–1,200 m, 10°47'N, 85°18'W, *Davidse et al. 23448* (CR, K, MO); 1,000 m, *Baker R20* (BM); 900–1,000 m, *Herrera 1609* (MO); 1,100–1,300 m, *Herrera 1405* (MO).

***Anthurium bucayanum* Croat, sp. nov. TYPE:**

Ecuador. Guayas: Río Chimbo, 0.9 km E of junction to El Triunfo at edge of General Elizalde (Bucay), 2°12'S, 79°05'W, 510 m, *Croat 61597* (holotype, MO 3422020-24; isotypes, AAU, B, BM, CAS, CM, GH, K, NY, QCA, RSA, SEL, US). Figures 66, 70–72.

Planta epiphytica aut terrestris; internodia brevia, 1.5–4 cm diam.; cataphyllum lanceolatum, persistens semi-intactum; petiolus (5.5)9–14 cm longus, 4–10 mm diam., acute D- aut C-formatus; lamina late oblanceolato-elliptica ad oblanceolata, (38)50–112 cm longa, (10)15–26.5 cm lata; nervis primariis lateralis (13)18–26 utroque. Pedunculus 34–48 cm longus, ca. 4 mm diam.; spathe oblongo-elliptica, 13.5–15 cm longa, 3 cm lata; spadix cylindricus infirme contractus, 8.5–10 cm longus, 6–8 mm diam. prope basim, 4–5 mm diam. prope apicem, atropurpureus. Baccae 4.5–6 mm longae, 3–3.2 mm latae.

Epiphytic or terrestrial; stem to ca. 60 cm long, 1.5–4 cm diam.; roots dense, ascending, pale greenish, conspicuously pubescent, short to moderately elongate, bluntly pointed at apex, 2–5 mm diam.; cataphylls membranous, lanceolate, unribbed, 2.5–12 cm long, acute at apex with a subapical apiculum, green, drying light brown with dense raphides, persisting semi-intact, eventually deciduous. *Leaves* erect to spreading; petioles (5.5)9–14 cm long, 4–10 mm diam., acutely D-shaped to C-shaped, broadly convex adaxially with the margins sharply raised and slightly turned inward, 5–10-ribbed abaxially, the surface somewhat pale-speckled; geniculum slightly thicker and paler than petiole, fissured transversely with age, 1–2 cm long; blades subcoriaceous (very thin on drying), broadly oblanceolate-elliptic to oblanceolate, acute to shortly acuminate at apex (the acu-

men weakly inrolled), narrowly acute to acute to narrowly rounded at base, (38)50–112 cm long, (10)15–26.5 cm wide, broadest at or above the middle, the margins broadly and shallowly undulate; upper surface glossy to semiglossy, medium green (B & K yellow-green 4/10), lower surface semiglossy; both surfaces drying semiglossy to weakly glossy, dark green to yellow-green; midrib broadly convex to obtusely flat-raised and obscurely sulcate above, higher than broad and bluntly 3–5-ribbed at base, becoming prominently convexly raised toward the apex below; primary lateral veins (13)18–26 per side, departing midrib at 55–75° angle, straight (sometimes weakly arcuate) to the collective vein, prominently convex above and below; tertiary veins weakly visible when fresh below, prominulous when dried; collective vein arising from near the base, weakly sunken above, weakly raised below, drying weakly raised above and below, less prominent than primary lateral veins, 3–10 mm from margin. *Inflorescences* erect to erect-spreading; peduncle 34–48 cm long, ca. 4 mm diam., 3.3–4.2× as long as petiole, drying blackish brown, terete; spathe spreading-recurved, subcoriaceous, green, oblong-elliptic, 13.5–15 cm long, 3 cm wide, acute at apex; stipe 5.5–7 cm long in front, 5.3–6 cm long in back; spadix dark violet-purple, blackish when dried, weakly tapered, ± erect, curved, 8.5–10 cm long, 6–8 mm diam. near base, 4–5 mm diam. near apex; flowers square to rhombic, 1.5–2 mm long, 1.2–1.9 mm wide, the sides ± straight; (5)6–9 flowers visible in principal spiral, (8)9–12 in alternate spiral; tepals matte; lateral tepals 1.3–1.5 mm wide, the inner margins straight to concave, the outer margins 2-sided; pistils weakly exserted; stigma slitlike, ca. 0.3–0.4 mm long; anthers ca. 0.4–0.5 mm long, (0.4)0.5–0.6 mm wide; thecae oblong, not divaricate. *Inflorescence* with spathe withered; spadix 17.5 cm long, ca. 1.2 cm diam.; berries (rehydrated) oblong, apparently rounded at apex, ca. 4.6–5 mm long, 3–3.2 mm diam.; seeds 2 per berry, yellow-brown with darker punctations, oblong-ovoid to somewhat broadly ellipsoid, slightly flattened laterally, 2.9–3.5 mm long, 2–2.3 mm diam., 0.9–1.5 mm thick.

Anthurium bucayanum is endemic to Ecuador, in the provinces of Guayas and Cotopaxi at 510–690 m in lower montane wet forest and premontane moist forest life zones.

This species is characterized by its epiphytic habit, its large very thin-drying, broadly oblong-oblancoolate to elliptic leaf blades which dry mostly dark green and have a collective vein arising from

the base and running close to the margin, and by its prominently stipitate, curved spadix.

Anthurium bucayanum is similar in appearance to *A. campii*, with which it shares general blade shape and size and overall spadix appearance. *Anthurium campii* differs in having much more coriaceous leaf blades and a sessile, green spadix, and occurring at higher elevations (1,200–2,000 m vs. 510–690 m). *Anthurium bucayanum* also resembles *A. sparreorum* (also from lowland coastal Ecuador) in overall appearance, but the latter differs in having thicker leaf blades, a subsessile spadix and perianth which becomes fleshy and conspicuous in fruit.

The species is named for the town of Bucay, near which it was first collected.

ECUADOR. COTOPAXI: 2 km N of Pucuyacu near bridge over Río San Francisco, 690 m, 0°41'S, 79°06'W, *Croat 57082* (MO). GUAYAS: Río Chimbo, Bucay–Río Bamba, Bucay, 510 m, 2°15'S, 79°5'W, *Croat 50912* (MO); 900 m E of junction to El Triunfo at edge of General Elizalde (Bucay), Los Ríos, border of Bolívar and Chimborazo provinces, 510 m, 2°12'S, 79°5'W, *Croat 61597* (AAU, B, BM, CAS, CM, GH, K, MO, NY, QCA, RSA, SEL, US).

Anthurium bushii Croat, sp. nov. TYPE: Ecuador. Morona–Santiago: Cordillera de Cutucú, along trail from Logrono to Yaupi, *Madison et al. 3285* (holotype, SEL 014964). Figure 73.

Planta epiphytica; internodia et cataphylla ignota; petiolus 8 cm longus, 7 mm diam., D-formatus; lamina oblanceolata, ca. 100 cm longa, 18.5 cm lata; nervis primariis lateralis ca. 21 utroque. Pedunculus 36 cm longus, ca. 2 mm diam.; spathe verisimiliter lanceolata, 8 cm longa, ca. 1.3 cm lata, purpurea; spadix oblongo-cylindricus, 12 cm longus, medio ca. 4 mm diam., colore ignoto. Baccæ ignotæ.

Description based on dried material only. Epiphytic; stem and cataphylls unknown; petioles 8 cm long, 7 mm diam., D-shaped, with medial rib and the margins sharply raised adaxially, probably rounded abaxially; geniculum conspicuously thicker and somewhat darker than petiole, 0.7 cm long; blades subcoriaceous, oblanceolate, narrowly acute at apex, very long-attenuate at base, ca. 100 cm long, 18.5 cm wide, broadest above the middle, the margins moderately undulate; both surfaces matte, grayish green, slightly paler below; midrib ± acutely raised above, slightly paler than surface, broadly convexly raised and brownish below; primary lateral veins ca. 21 per side, departing midrib at 40–50° angle, usually straight, sometimes weakly arcuate to the margin, conspicuously raised above and below, the same color as the midrib; tertiary