

long, the posterior lobes 12–21 cm long, directed inward, rounded at apex; sinus usually narrowly triangular to closed, sometimes with overlapping lobes; upper surface matte to semiglossy, medium green, lower surface semiglossy, slightly paler; midrib above acutely raised at base, becoming sharply and narrowly raised toward the apex and paler than surface, below convexly raised at base, becoming sharply acute toward the apex; basal veins 5–9 pairs, not coalesced, sharply and narrowly raised above, less so below; primary lateral veins 9–20 per side, departing midrib at 35–50° angle, slightly arcuate-ascending, faintly loop-connecting, sharply raised above, less prominently and paler than surfaces below; interprimary veins few, narrowly raised above and below, paler than surface above; tertiary veins flat to weakly sunken above, somewhat raised below, paler than surface above and below; reticulate veins scarcely visible above, scarcely raised below, prominent when dried on both surfaces; collective vein arising from 2nd basal vein, slightly sunken above, slightly raised below, obscure above when dried, slightly raised and paler than surface below, 2–6 mm from margin. *Inflorescences* erect, much shorter than leaves; peduncle sometimes absent or to 20 cm long, 4–5 mm diam., 0.2–0.4 × as long as petiole, dark purple, terete; spathe spreading-reflexed to twisted, coriaceous, dark purple tinged with green (B & K red-purple 2/7.5), ovate-lanceolate, 6.5–15 cm long, 1.6–3.5 cm wide, broadest near base, inserted at 45° angle on peduncle, abruptly acuminate at apex (the acumen inrolled), rounded to subcordate at base, the margins meeting at 90–180° angle and stiffly rolled under; spadix deep red-violet to purple (B & K purple 2/7.5), cylindroid-tapered, 4–14 cm long, 7–9 mm diam. near base, 4–5 mm diam. near apex; flowers rhombic to square, 2.6–3 mm long, 1.5–3.5 mm wide, the sides ± straight; 4–6 flowers visible in principal spiral, 5–8 in alternate spiral; tepals matte, densely greenish punctate, minutely papillate; lateral tepals 1.9 mm wide, the inner margins straight to convex; pistils not emergent, rectangular, minutely and barely exposed and somewhat glossy, violet-purple (also reported as white); stigma slitlike; stamens emerging slowly from the base, in a regular progression, weakly exerted then retracting, grouped in a tight cluster above pistil; filaments flattened, translucent, 0.3–0.5 mm long, 0.6–0.7 mm wide; anthers yellow, 0.5–0.6 mm long, 0.7–0.9 mm wide, inclined over pistil; thecae ellipsoid, scarcely divaricate; pollen yellow (B & K yellow 9/5), sweet-scented; *Infructescence* with spathe usually persisting; spadix to 35 cm long, 2.5 cm diam., bearing berries in the basal portion only; berries pinkish with metallic sheen,

darker in the apical third, obovoid, acute to rounded at apex, 9–10 mm long; pericarp thin; seeds 2 per berry, light brown, flattened, 6 mm long, 5 mm diam., 2 mm thick.

Anthurium schottianum is known only from a region of premontane wet forest-basal belt transition in extreme southwestern Costa Rica at less than 100 m. It will no doubt be found elsewhere in Costa Rica and Panama on the Atlantic slope.

This species is distinguished by its large, thin, ovate leaf blades with scarcely any posterior rib (i.e., all basal veins are free to the petiole), and by its short peduncle, purple spadix and ovate-lanceolate, often purplish, frequently twisted spathe. An unusual feature is the seasonal appearance of several inflorescences at the same time. The species has no known relatives.

COSTA RICA. LIMÓN: 1 mi. NE of Bribri, 40 mi. SW of Limón, 50–100 m, *Croat* 43247 (CR, F, K, M, MO, NY, RSA, SEL, US); Reserva Biológica Hitoy Cerere, Río Cerere to 1 km upstream from Quebrada Barrera, SW of Valle La Estrella, 90–200 m, 9°40.5'N, 83°2'W, *Grayum* & *Hammel* 5764 (B, MO); Río Catarata, N of Bribri, *Uiley* 5500 (DUKE); Río Sixaola, Bribri–Caribbean coastal plain, 50–100 m, 9°37'N, 82°49'W, *Baker* & *Burger* 69 (MO), *Burger et al.* 10391 (F, MO), 10300 (MO).

Anthurium seibertii Croat & R. A. Baker, *Brenesia* 16(Suppl. 1): 85. 1979. TYPE: Panama. Chiriquí: wooded slopes on Cerro Horqueta, 1,650 m, *Croat* 26976 (holotype, MO 2251853; isotypes, B, BM, CM, CR, F, GH, K, M, NY, PMA, RSA, US). Figures 282, 288, 291.

Epiphytic or epilithic or terrestrial; stem thick, short, 3–6 cm diam.; leaf scars mostly inconspicuous, ca. 2 mm wide; roots numerous, spreading to descending, pale green, pubescent, moderately thick and elongate, blunt, 3–6 mm diam.; cataphylls moderately coriaceous, lanceolate, prominently 1-ribbed near the apex, 12–21 cm long, acute at apex with subapical apiculum to 5 mm long, light green, drying tan (B & K yellow-red 8/5), persisting semi-intact, eventually deciduous. *Leaves* erect-spreading; petioles 10–55 cm long, 6–10 mm diam., stiff, firm, subquadrangular, flattened adaxially, the margins sometimes raised, 1–5-ribbed abaxially, the surface pale-speckled; geniculum thicker and paler than petiole, becoming fissured transversely with age, 1.5–3 cm long; blades coriaceous to subcoriaceous, oblong-elliptic, gradually acuminate at apex (the acumen apiculate), acute to obtuse to narrowly rounded at base, 45–85 cm long, 4–16 cm wide, broadest at or near the middle, the margins flat to slightly undulate;

upper surface glossy to semiglossy, medium to dark green, lower surface matte to glossy, conspicuously paler; midrib convexly raised above, paler than surface, sharply and obtusely raised below, slightly paler than surface; primary lateral veins many per side, departing midrib at 50–60° angle, arcuate-ascending, prominently loop-connecting, prominently sunken above, raised and darker than surface below; interprimary veins almost as conspicuous as primary lateral veins; tertiary veins obscure above, weakly visible below; reticulate veins obscure above, mostly obscure below, drying partly prominulous on both surfaces; collective vein arising from near the base, equally as prominent as primary lateral veins, sunken above, raised and darker than surface below, 2–7 mm from margin. *Inflorescences* erect to spreading, shorter than leaves, 1–5 per plant; peduncle 30–60 cm long, 6–10 mm diam.; 1.5–3 × as long as petioles, green, sometimes tinged with purple, terete with single dorsal rib; spathe reflexed, often becoming recurled, subcoriaceous, plain green or tinged with purple (B & K yellow-green 7/10), oblong-lanceolate, 10–17 cm long, 2.5–4.3 cm wide, broadest near the base, inserted at 50° angle on peduncle, gradually and narrowly long-acuminate at apex, rarely short-acuminate (the acumen inrolled), rounded (scarcely decurrent) at base, the margins meeting at ca. 140° angle; stipe 13 mm long in front, 1 mm long in back; spadix violet-purple (B & K blue-purple 2/10), cylindroid-tapered, 10–20 cm long, 7–13 mm diam. near base, 5–6 mm diam. near apex; flowers 4-lobed at apex, 2–2.5 mm in both directions, the sides jaggedly sigmoid; 7–10 flowers visible in either spiral; tepals matte; lateral tepals ca. 1.5 mm wide, the inner margins straight; pistils rectangular, orange-yellow; stigma rectangular, ca. 0.7 mm long, droplets persisting for several days before stamens emerge; stamens emerging ± rapidly from the base, held just above tepals at anthesis; filaments not exposed; anthers pale orange, ca. 0.5 mm long, 1 mm wide; thecae ellipsoid, scarcely divaricate; pollen white. *Infructescence* pendent; spathe often deciduous; spadix 22–30 cm long, ca. 2 cm diam.; berries orange, obovoid, flat to rounded at apex, 10–12 mm long; mesocarp mealy, orange, sweet-tasting but pungent; seeds 2 per berry, ± oblong with rounded corners, ca. 5 mm long, 4 mm diam., 2 mm thick.

Anthurium seibertii ranges from central Costa Rica to western Panama at 1,000 to 3,000 m in premontane wet, lower montane wet, and lower montane rain forest life zones.

This species is characterized by its oblong-elliptic

leaf blades, subquadrangular petioles, violet-purple spadix, and orange berries.

Anthurium seibertii is very similar to *A. protensum*. These species share similar strap-shaped leaves, purple spadices, and orange berries. *Anthurium protensum* differs in having a nearly terete petiole, while *A. seibertii* has petioles that are quadrangular in cross section and prominently ribbed abaxially. Leaves of *Anthurium protensum* are also usually pendent and generally smaller than those of *A. seibertii*.

COSTA RICA. ALAJUELA: San Carlos, 1,375 m, *Smith 1498* (NY). LIMÓN: Cerro Pittier, Valle de Silencio, 6,000–6,500 ft., *Antonio 1675* (cultivated at MO). PUNTARENAS: Cantón de Coto Brus, cultivated at Las Cruces Tropical Botanical Garden, 6 km W of San Vito de Java, 1,200 m, *Croat 57259* (MO); Cerro Burú, upper slopes, 2,000–2,300 m, 90°N, 82°49'W, *Davidse et al. 23789, 23790, 23791, 23831* (MO); Cordillera de Talamanca, Cerro Frantzius–Cerro Pittier, Río Canasta, 9.4 air km NW of Agua Caliente, 1,500–1,600 m, 92°N, 82°59'W, *Davidse et al. 28395* (MO); Cerro Frantzius to Valle de Silencio, 2,000–2,500 m, 93°–6'N, 82°58'–59'W, *Davidse et al. 28565* (CR, MO); headwaters of Río Bella Vista–Sitio Cotón on Río Cotón, 1,800–2,200 m, 9°49'–57'N, 82°46'–49'W, *Davidse et al. 25535* (MO); Tres Colinas, 1,800–1,850 m, 97°N, 83°4'W, *Davidse et al. 25602* (K, MO, RSA), *25613* (CR, K, MO), *25636* (B, MO); Tres Colinas–Cerro Bekom, 2,300 m, 97°–10'N, 83°4'W, *Davidse & Herrera 26179, 26183* (CR, MO); Sitio Coto Brus, 1,800–1,900 m, 8°59'N, 82°46'W, *Davidse 24528, 24534* (MO); Monteverde Reserve, 11°20'N, 84°40'W, *Hepper 110* (BM); Río Burú, upper part, 2,010 m, *Gómez et al. 21800* (CR, MO); Río Cotocito, Las Tablas, Zona Protectora, *Chacón et al. 1768* (DUKE, MO, RSA). SAN JOSÉ: Sierra–San Cristóbal Sur, 1–2 km from Sierra, 1,900 m, *Uteley & Uteley 3059* (MO); El General, 1,040 m, *Skutch 2626* (F, MO). PANAMA: CHIRIQUÍ: 1.5 mi. W of Cerro Punta, 1,700 m, *McDaniel 10161* (IBE); Bambito, 2,000 m, *Correa & Lazor 1407* (PMA); Bambito–Cerro Punta, *Croat 10555* (MO); Cerro Punta–Quebrada Iglesia, *Croat & Porter 16063* (M, MO, RSA, U, VEN); 3.7 km E of bridge NE of Cerro Punta, on road through Bajo Grande, 2,250–2,400 m, 8°50'N, 82°32'W, *Stevens 18226* (MO, PMA); Volcán, *Antonio 1059* (MO); 3.5 km NE of Boquete, end of road along Río Palo Alto, *Hammel 5667* (MO); Barú Summit, W end of high ridge W of summit, 3,000 m, *Hammel et al. 6916* (MO); Boquete Region, Quíel Road, 10 km above Boquete, 1,830 m, *Proctor 31816* (LL); Bajo Mono, Quebrada Chiquero, 1,500 m, *Woodson & Schery 599* (MO); Palo Alto, E of Boquete, 1,670 m, *Stern et al. 1076* (MO); Boquete, Monte Rey, *Croat 15743* (MO, NY), *15844* (MO), *Woodson & Schery 265* (MO); Boquete, La Popa, 1,500–2,500 m, *D'Arcy 10853* (MO); Boquete, *Folsom 2194* (MO); Cerro Horqueta, 1,500–1,830 m, *Croat 26976* (B, CM, CR, F, GH, K, M, MO, NY, PMA, RSA, US), *Dwyer 8749* (MO, DUKE); 1,870–2,470 m, *Auerett et al. 1084* (MO); NW of Boquete, 1,670–1,930 m, *Burch 553* (MO); above Boquete, on E slope above Quebrada Horqueta, 1,660–1,700 m, 8°49'N, 82°29'W, *Cochrane et al. 6243* (MO, WIS); Cerro La Trompeta, Palo Alto, 4.5 mi. NE of Boquete, 2,070 m, *Hammel 7464* (MO); Cerro Pate Macho, 1,630–

1,780 m, 8°46'N, 82°25'W *Croat* 66358 (MO); headwaters of Río Palo Alto, above Palo Alto, 1,700–2,100 m, 8°47'N, 82°22'W, *Knapp & Schmalzel* 4794 (MO, USM); N fork of Río Palo Alto–Cerro Pate Macho, 6 km NE of Boquete, 1,500–1,700 m, *Grayum et al.* 6361 (CM, MO, NY), *Stein et al.* 1183 (MO); Cerro Punta, Raul Castro's house, Guadalupe, 2,000–2,330 m, *Folsom* 6034, 6035 (MO); 0.5 mi. SE of Entre Ríos, 1 mi. by road from Cerro Punta, 2,000 m, *Croat* 48568 (K, MO, PMA, SEL); 2.2 mi. below Cerro Punta, W side of Volcán Chiriquí, 200 m, *Luteyn* 902 (MO); Alto los Guerra, road W of Bambito, 1,800–2,000 m, 8°53'N, 82°37'W, *Hamilton & Krager* 3894 (B, K, MO); E of Bajo Choro, N slope of Barú, 2,000–2,170 m, *Hammel* 2994 (MO); Quebrada Bambito, S of Cerro Punta, *Lazor* 2727 (MO); Las Cumbres, W of Cerro Punta, 2,470 m, *D'Arcy et al.* 13196 (MO); Casita Alta, Volcán de Chiriquí, 1,500–2,000 m, *Woodson et al.* 882, 982 (MO); Bambito–Cerro Punta, Volcán de Chiriquí, *Croat* 10551 (MO); Las Nubes, 2,000 m, *Croat* 26427 (MO, SEL), *Croat* 26494 (B, CAS, CM, DUKE, K, MO); N of Audubon cabin, *Croat* 13618 (MO); along road to Cerro Punta, 8 km NW of Boquete, 5.5 km NW of Alto Quiel, 1,600 m, *Nee* 9945 (MO); E of Cerro Punta, road to Paseo Respingo, 2,330 m, *Hammel et al.* 6623 (MO); Río Caldera, Bajo Mono, NW of Boquete, 2,130 m, *D'Arcy et al.* 12761 (MO); Río Chiriquí Viejo, upper part, Monte Lirio, 1,300–2,000 m, *Allen* 1506 (MO), *Seibert* 172 (MO, NY), *Seibert* 289 (MO); Dtto. Boquete, Bajo Chorro, *Davidson* 225, 276 (MO); Dtto. Bugaba, Cerro Pando, Santa Clara, Hartman's finca, 1,300 m, 8°50'N, 82°44'W, *van der Werff & Herrera* 7126 (B, MO), 7303 (MO, RSA).

Anthurium selloum K. Koch, Ind. Sem. Hort. Berol. App. 8. 1855. TYPE: St. Johns, Virgin Islands, *Krebs s.n.* (lectotype, C). Figures 193A, 289.

Pothos macrophylla Sw., Prodr. 33: 1788; Fl. Ind. Occ. 3: 269. 1806. TYPE: Jamaica? Not seen.

Anthurium macrophyllum (Sw.) Schott (1829) non D. Don in Sweet (1839) nec Endl. ex Griseb. (1864), Prodr. Aroid. 516. 1860.

Description based on dried material only. Epilithic; stem and cataphylls unknown. *Leaves* with petioles ca. 34–45 cm long, ca. 7 mm diam., mostly spreading, apparently D-shaped, slightly flattened laterally, sulcate adaxially, with the margins acutely raised, rounded abaxially; geniculum thicker and paler than petiole, 1–1.5 cm long; sheath 4 cm long; blades subcoriaceous, oblong-ovate, somewhat triangular, acute to weakly and shortly acuminate at apex (the acumen ca. 10 mm long), broadly and shallowly cordate at base, 36–46 cm long, 14–19 cm wide, broadest in the basal third, the margins conspicuously and broadly undulate; apex of posterior lobes rounded; sinus parabolic-arcuate, 3 cm deep; both surfaces weakly glossy, yellowish brown and greenish in part; midrib apparently convexly raised above and below; major

veins convexly raised, paler than surface and yellowish above and below; basal veins 3–4 pairs, 2nd & 3rd to 4th coalesced for up to 1.3 cm; primary lateral veins 3–5 per side, departing midrib at 25–45° angle, mostly straight, sometimes arcuate to the margin; interprimary veins sometimes present, ranging from not as conspicuous as to almost as conspicuous as primary lateral veins; tertiary veins conspicuous above and below; reticulate veins obscure above, weakly visible below; collective vein arising from uppermost ½ or ⅓ of the blade, less prominent than primary lateral veins, to 11 mm from margin. *Inflorescences* apparently ± spreading; peduncle 39–73 cm long, 2–4 mm diam., 1.1–2.1 × as long as petiole, pale green, subterete; spathe semi-erect to reflexed, thinly coriaceous, pale green, oblong-lanceolate, 7.5–13.5 cm long, 0.8–1.4 cm wide, broadest near the base, inserted at 40–50° angle on peduncle, narrowly acuminate to caudate at apex (the acumen 10–20 mm long), acute to obtuse at base; spadix dark maroon purple to brownish purple, long-tapered, sessile, held at 150–170° angle from peduncle, 14–27 cm long, 6–8 mm diam. near base, 2–3 mm diam. near apex, broadest near the base; flowers rhombic, 1.6–2.4 mm long, 1.7–2.8 mm wide, the sides jaggedly to smoothly sigmoid; 7–8 flowers visible in principal spiral, 4–6 in alternate spiral; tepals roughened, lateral tepals 1.1–1.5 mm wide, the inner margins usually broadly convex, sometimes straight, the outer margins 2-sided; stigma broadly ellipsoid, 0.4–0.6 mm long, densely brush-like; filaments apparently flattened, 0.4–0.5 mm long, 0.5–0.7 mm wide; anthers yellow, 0.5–0.6 mm long, 0.4–0.5 mm wide; thecae oblong, not divaricate. *Infructescence* not seen.

Anthurium selloum is endemic to the West Indies, known only by a few collections from elevations of 300 m or less, on two of the U.S. and British Virgin Islands (St. John and Tortola, respectively).

This species is distinguished by its somewhat triangular, shallowly cordate leaf blades broadest in the lower third and with 3–4 pairs of basal veins, and by the long-tapered, dark maroon-purple spadix. It is unlikely to be confused with any other species in the West Indies, or anywhere else.

Engler (1905) questionably placed *Pothos macrophylla* Sw. in synonymy with *A. selloum*, perhaps based on Schott's (1860) placement of *A. selloum* in synonymy with *A. macrophyllum* Schott.

BRITISH VIRGIN ISLANDS. TORTOLA: High Bush, 75 m, *Britton & Shafer* 714 (NY, US). U.S. VIRGIN ISLANDS. ST JOHN: *Raunkiaer* 2669 (C); Bordeaux, 300 m, *Britton*