

above, obtusely raised and faintly reddish below; primary lateral veins 10–16 per side, departing midrib at 30–50° angle, straight to arcuate-ascending to the margin, prominently raised above, less so below; tertiary veins raised, prominulous; collective vein arising in the upper 1/3 of the blade, raised above and below, prominulous, 2–10 mm from margin. *Inflorescences* spreading-pendent; peduncle 23–54 cm long, 3–9 mm diam., 2.2–4.5(5.9)× as long as petiole, terete; spathe reflexed, subcoriaceous, greenish, sometimes tinged with violet-purple, oblong-oblancoate, 5–30 cm long, 0.9–3.5 cm wide, inserted at 40–70° angle on peduncle, acuminate at apex, acute at base; stipe 5–20 mm long in front, 1–10 mm long in back; spadix purple, cylindroid, slightly tapered, curved, erect, 7–8 cm long, 4 mm diam. near base, 3 mm diam. near apex; flowers 4-lobed, 1.2–1.5 mm long, 1.2–1.5 mm wide, the sides sigmoid; 5–6 flowers visible in principal spiral, 10–12 in alternate spiral; tepals minutely papilae, pale-punctate; lateral tepals 0.8 mm wide, the inner margins rounded, weakly scarious, minutely erose, the outer margins straight to rounded, 2-sided, paler; stigma oblong-ellipsoid, 0.3–0.7 mm long, 0.1–0.3 mm wide; anthers 0.5 mm long, 0.5 mm wide; thecae oblong-ellipsoid, slightly divaricate. *Infructescence* pendent; spathe persisting; spadix 7–60 cm long, 0.7–3 cm diam.; berries dark violet-purple in upper 1/3 becoming whitish toward the base, subglobose to cylindroid, 5–10 mm long, 3–4 mm diam.; pericarp with white raphide cells; seeds 2.8–4 mm long, 1.5–1.9 mm wide, 1.0–1.2 mm thick, with a gelatinous, transparent appendage at both ends.

Anthurium ernestii var. *oellgaardii* is known at present only from east central Ecuador in the province of Pastaza in the vicinity of the type locality on the Río Bobonaza and Río Bufo at about 300 m in a tropical moist forest life zone. Some of the collections are reported from periodically flooded forest dominated by *Mauritia* palms.

This variety is distinguished by its large, broadly oblanceolate blades, which dry green with reddish brown or yellowish major veins and are attenuate at the base, and especially by its long-pedunculate inflorescence which is spreading-pendent at anthesis and produces a stout purple infructescence to 60 cm long and 3 cm diam. in fruit. It is noteworthy that only the type specimen has an infructescence of such large dimensions; all others are substantially more slender.

This variety shares most features of the typical

variety, except the slender, tapered spadix. The latter differs in its proportionally shorter, cylindroid, spadix, generally shorter peduncles (in relation to petiole length) which are erect, and blades which usually dry brownish or, if greenish, very rarely clear green.

Anthurium ernestii var. *oellgaardii* can also be confused with *A. uleanum*, which has similar leaves, a long peduncle, and a similar, tapered inflorescence. That species differs in having tepals which bear a waxy, powderlike, grayish white covering on drying, and leaves which dry brownish. In contrast, the tepals of *A. ernestii* var. *oellgaardii* are minutely granulose and glossy on drying, and the leaves dry green.

Most of the specimens examined are of fruiting material, and the upper limits of flowering spadix length are not known.

This variety is named in honor of Benjamin Oellgaard, who participated in several expeditions to Ecuador and who made all known collections of var. *oellgaardii*.

ECUADOR: PASTAZA: Río Bobonaza, Cachitama—outlet of Río Bufo, 300 m, 2°20'S, 76°40'W, *Oellgaard et al.* 34733, 34735, 34737 (AAU); Destacamento Cabo Pozo—oil exploration camp Chichirota, 300 m, 2°25'S, 76°39'W, *Oellgaard et al.* 34881 (AAU, MO), 34882 (AAU); Destacamento Cabo Pozo—La Boca, near outlet to Río Pastaza, 275 m, 2°30–35'S, 76°38'W, *Oellgaard et al.* 34933, 34937 (AAU); Río Bufo, N tributary of Río Bobonaza, 300 m, 2°20'S, 76°40'W, *Oellgaard et al.* 34764, 34801 (AAU), 34769 (AAU, MO).

Anthurium eximium Engl., Bot. Jahrb. Syst. 25: 412. 1898. TYPE: Costa Rica. Puntarenas: in forest near Punta Mala, *Tonduz 6768* (lectotype, BR; isolectotype, CR). Figures 125, 132.

Epiphytic; stem elongate, 10–100 cm long, ca. 1 cm diam.; roots ascending to descending, pale green, pubescent, moderately elongate, somewhat tapered, 3–5 mm diam.; cataphylls subcoriaceous, narrowly lanceolate, 3.7–10 cm long, acute at apex with a subapical apiculum, yellowish green, drying brown, persisting intact, eventually deciduous. *Leaves* spreading; petioles 7–12 cm long, 6–7 mm diam., D-shaped to subterete, broadly to narrowly sulcate adaxially, the margins blunt or sharp, not raised, abaxially rounded to 3-ribbed; geniculum thicker and paler than petiole, 0.5–1 cm long; blades subcoriaceous, narrowly oblanceolate, long-acuminate at apex (the acumen apiculate), narrowly acute to acute to obtuse or narrowly rounded at base, 23–80 cm long, 3.3–11.5 cm wide, broadest above the middle, the margins weakly undulate;

upper surface weakly glossy to matte, medium green, lower surface weakly glossy to semiglossy, paler, drying matte, greenish; midrib obscurely and obtusely angular at base, becoming acutely raised toward the apex above, higher than broad at base, becoming round-raised toward the apex, conspicuously paler than surface below; primary lateral veins 10–12 per side, departing midrib at 40–45° angle, weakly arcuate to the collective vein, sunken above, raised below; interprimary veins almost as conspicuous as primary lateral veins; tertiary veins obscure above, slightly darker than surface below; collective vein arising from near the base, sunken above, raised below, equally as prominent as primary lateral veins, 1–4 mm from margin. *Inflorescences* spreading, shorter than leaves; peduncle 29–32 cm long, 3–5× as long as petioles, green tinged reddish, terete; spathe spreading to reflexed, green, lanceolate-ovate to ovate, 5–7.7 cm long, 2–2.6 cm wide, clasping at base; spadix creamy white to yellow to grayish or brown, cylindrical to clavate, held at 90° angle to peduncle, 4.5–6 cm long, 8–10 mm diam. near base, 9 mm diam. near apex; flowers rhombic, 1.2–1.6 mm long, 1.3–1.8 mm wide; 10–12 flowers visible in principal spiral; tepals matte, densely papillate; lateral tepals 0.8–1.1 mm wide, the inner margins straight, the outer margins 2-sided; stigma ellipsoid, 0.3–0.4 mm long; stamens emerging somewhat irregularly in a complete sequence, the laterals preceding the alternates by 1–2 spirals; anthers pale white, 0.6–0.7 mm long, 0.5–0.6 mm wide; thecae oblong, not divaricate; pollen yellow, faintly aromatic at anthesis. *Infructescence* to 13 cm long, 1.5–1.7 cm diam.; berries pinkish to bright red, obovoid, ca. 4.6–7 mm long, 4–5 mm diam.; seeds 2 per berry, yellow, oblong, slightly flattened, 2.5–3.1 mm long, 1.2–1.5 mm diam., 0.9–1.2 mm thick.

Anthurium eximium is endemic to Costa Rica and is found strictly on the Pacific slope, in tropical wet forest formation from sea level to 800 m.

This species can be distinguished by the oblanceolate, epunctate leaves, persistent cataphylls, clasping, lanceolate spathe, cylindrical to clavate spadix, and bright red berries.

Anthurium eximium most closely resembles *A. bradeanum* and *A. spathiphyllum* (which are both restricted to the Atlantic slope), but differs from both by having entire cataphylls. *Anthurium bradeanum* also differs in having typically more elliptical leaf blades and 16–20 flowers per principal spiral (10–12 in *A. eximium*). *Anthurium spathiphyllum* also differs from *A. eximium* in having leaf blades with 20–30 primary lateral veins per side (vs. fewer than 13 in *A. eximium*).

In his monograph, Engler (1905) cited *Anthurium eximium* as a synonym of *A. consobrinum*. The leaf shapes in both species are very similar, but *A. eximium* has the collective vein arising from near the base, while *A. consobrinum* has the collective vein arising from about the middle. In addition, Schott's illustration of *A. consobrinum* clearly shows a long, slightly tapered spadix with pistils and berries greatly exceeding the tepals. *Anthurium consobrinum* is a common species of the Atlantic lowlands, and numerous collections are consistent with Schott's drawing. The berries of *A. consobrinum* are white with purple, pink, or orange apices as opposed to the solid bright red berries of *A. eximium*.

Anthurium eximium is a member of sect. *Pachyneurium* despite certain features it shares with sect. *Calomystrium*, including the thick, persistent, intact cataphylls, and the presence of linear raphide cells on both blade surfaces.

COSTA RICA. PUNTARENAS: 2.5 mi. SE of Golfito, along hwy. from Río Claro to Golfito, 60 m, 8°36'N, 83°4'W, *Croat 67622* (MO); Punta Mala, *Tonduz 6768* (BR, CR); Palmar Norte, 100–200 m, *Croat 35121* (MO, CR); Santo Domingo de Golfo Dulce, *Tonduz 7260* (BR, CR, US); 100 ft., *Allen 5211* (US); Osa Peninsula, Corcovado National Park, 0–1 km W of park headquarters at Sirena, 0–200 m, *Gentry & Acevedo 48690* (B, CM, MO), *Knapp 2192* (MO, PMA), *Liesner 2846* (MO), *2996* (MO); Parque Nacional Corcovado, 0–150 m, 8°27'–30'N, 83°33'–38'W, *Kernan 70* (CR, F, K, MO); Rincon de Osa, 20–300 m, *Liesner 1934* (MO); 5 km W of Rincon de Osa, NW of airfield, 50–200 m, 8°42'N, 83°31'W, *Burger & Liesner 7286* (MO, NY); E base of Fila Barigones, 1 km S and 2 km W of Cañasas, 12 km S of Rincon de Osa, 60 m, 8°34'N, 83°25'W, *Croat & Grayum 59823* (MO); Las Cruces Botanical Garden, *Croat 57240* (MO). SAN JOSÉ: Santa María de Dota, *Croat 55204* (MO); Cerro Pelón, N base, just E of main road, 0.5 km S of San Martín de Puriscal, 800 m, 9°44'N, 84°23'W, *Grayum & Baker 4694* (MO); Montañas Jamaica, 2.5 km NE of Bijagual de Turrubares, Carara Reserve, 460–520 m, 9°45'N, 84°33.5'W, *Grayum et al. 5478* (MO); Río Negro, ca. 1.5 km E of Santa Rosa de Puriscal, 320 m, 9°42'N, 84°23'W, *Grayum et al. 8339* (CR, MO).

Anthurium fasciale Sodiro, *Anales Univ. Centr. Ecuador* 19: 288. 1905. TYPE: Ecuador. Tungurahua: Río Pastaza, *Sodiro s.n.* (holotype, B; isotype, G). Figures 126, 133.

Epiphytic or terrestrial; stem climbing, to 50 cm long, 1–3 cm diam.; roots moderately few, descending, drying 2 mm diam.; cataphylls subcoriaceous, lanceolate, 14–24 cm long, acute at apex, drying whitish, straw-colored, persisting as a reticulum of fibers. *Leaves* mostly spreading; petioles 11–40(60) cm long, 5–11 mm diam.,