

gins undulate; upper surface matte to weakly glossy, medium green, lower surface semiglossy to glossy, paler; midrib bluntly angular-raised above, below prominently higher than broad at base, becoming angular-raised toward the apex and paler than surface; primary lateral veins 11–20 per side, departing midrib at 40–60° angle, broadly arcuate, sunken to weakly raised in grooves above, prominently convexly raised below; interprimary veins almost as conspicuous as primary lateral veins; tertiary veins sunken above, raised below; collective vein arising from near the base, sunken above, raised below, equally as prominent as primary lateral veins, 2–8 mm from margin. *Inflorescences* erect, longer than leaves; peduncle (30)70–130 cm long, equal to 1.2–1.5× as long as petiole; spathe pale green, ovate-lanceolate, 8–13 cm long, 2.5–4.8 cm wide, inserted at 45° angle on peduncle, acuminate at apex, rounded at base; spadix pale green, moderately tapered, 5–12 cm long, ca. 9 mm diam. near base, ca. 6 mm diam. near apex; flowers sub-rhombic to 4-lobed, 1.7–2.5 mm long, 2–2.7 mm wide, the sides straight to sigmoid; 8–9 flowers visible in principal spiral, 12–18 in alternate spiral; tepals matte, minutely and densely papillate; lateral tepals 1.4–1.8 mm wide, the inner margins straight; pistils weakly emergent, green; stigma 0.4 mm long, weakly exerted and brush-like, droplets appearing 3–4 days before stamens emerge; stamens emerging in a scattered pattern, held against the pistil; filaments fleshy, greenish, translucent; anthers creamy white, 0.5–1 mm long, 0.6–1.1 mm wide; thecae ellipsoid, not divaricate; pollen yellow fading to creamy white, abundant.

Anthurium oerstedianum is endemic to Costa Rica at 800 to 1,300 m, principally on the south-western, Pacific slope in premontane wet, tropical wet, and premontane rain forest.

This species is distinguished by its strictly terrestrial habit as an understorey forest herb and by its geniculum, which is located 10–20 cm below the base of the blade. Other distinguishing features are its four-sided petiole and greenish spadix. This species is a somewhat atypical member of sect. *Pachyneurium* because of its elongate petioles, remote geniculum, and lack of a dense, rosulate habit. It is apparently not closely related to any other species.

Anthurium cuspidifolium, which is synonymous with *A. oerstedianum*, was reported by Macbride (1936) from Peru. However, the specimens cited by him (*Macbride 5622* (F); *Schunke 572* (F)) are referable to *A. flavescens* Poeppig.

The Cartago collection locality cited by Schott

in the type description is dubious because no modern collection of this species has been made from anywhere on the Atlantic slope. Since Schott mentions only "Naranjo," perhaps the collection refers to the Río Naranjo on the Pacific slope where it easily could have occurred.

COSTA RICA. CARTAGO: vic. Naranjo, *Oersted s.n.* (illustrated by Schott, Aroideae 328). PUNTARENAS: 6 km S of San Vito de Java, Wilson's finca, 1,330 m, *Raven 20922* (MO); Las Cruces Botanical Garden, along road to river below botanical garden, 1,300 m, *Croat 44415* (MO); Osa Peninsula, Corcovado, *Gilbert s.n.* (MO). SAN JOSÉ: San Isidro de General—coastal town of Dominical, SW of San Isidro, 900–1,000 m, *Croat 35267* (MO, NY), 35293 (MO); 0.5 mi. above turnoff to Canaán at Rivas, 900 m, *Croat 43419* (MO); El General, 1,010 m, *Skutch 2291* (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 4693* (B, CR, MO); Río Chirripó del Pacífico, Canaán—Chimiro, General Valley, 1,000 m, *Burger & Liesner 7124* (MO).

***Anthurium ottonis* K. Krause, Notizbl. Bot. Gart. Berlin-Dahlem XI: 609. 1932. TYPE: Bolivia. La Paz: Prov. Sud Yungas: Jirupaysi, near Yanacachi, *Buchtien 387* (holotype, B). Figures 209, 210.**

Terrestrial; stem moderately slender, to at least 11 cm long, 0.8–1.5 cm diam.; roots moderately numerous, spreading, green, drying grayish to pale brown, ± villous, especially when young, elongate, somewhat tapered, sometimes branching, ca. 3–25 cm long, 2–8 mm diam.; cataphylls subcoriaceous, lanceolate to broadly lanceolate, 7–13 cm long, acute to rounded at apex, yellow-green, tinged with red, drying brown to reddish brown (B & K yellow-red 4/10), persisting intact to semi-intact, rarely as fine linear fibers, eventually deciduous. *Leaves* erect to spreading; petioles 22–42 cm long, 3–6 mm diam., erect to erect-spreading, subterete to broader than thick, bluntly and shallowly sulcate adaxially, rounded abaxially, the surface prominently pale-speckled; geniculum much paler and somewhat thicker than petiole, becoming fissured transversely with age, 0.5–2 cm long; blades coriaceous, linear-oblong, narrowly acute and mucronate at apex, acute to obtuse to narrowly rounded at base, 38–60(100) cm long, 2.2–7 cm wide, broadest at or near the middle (12.6–17.6× longer than the petiole), the margins flat to somewhat undulate; upper surface matte to weakly glossy, dark green, lower surface matte, conspicuously paler; both surfaces drying matte, green to yellowish green; midrib convexly raised, paler than surface above, pale-speckled like petiole, higher than broad at base, becoming prominently convex to

ward the apex below, moderately paler than surface and pale-speckled like petiole; primary lateral veins 18–26 per side, departing midrib at 45–60° angle, straight to arcuate, weakly sunken to obscure above, darker than surface below; interprimary veins obscure above, almost as conspicuous as primary lateral veins below; tertiary veins obscure above, weakly visible below; reticulate veins not visible; collective vein arising from the base, equally as prominent as primary lateral veins, 1–4(6) mm from margin. *Inflorescences* erect, shorter than leaves; peduncle 27–50 cm long, 2–4 mm diam., 0.8–1.3 × as long as petioles, pale reddish, drying greenish to brownish, terete; spathe spreading-recurved, subcoriaceous, yellow-green tinged with red on the midline, oblong-lanceolate to linear, ca. 3.5–6.5 cm long, 0.8–1.3 cm wide, broadest near the base, acute to abruptly acuminate at apex (the acumen apiculate, 4 mm long), acute at base; spadix maroon (B & K red-purple 2/5), dark brown when dried, slightly tapered, subsessile, somewhat curved, held at 150° angle from peduncle, 4–10(12) cm long, 4–5(6) mm diam. near base, 2–3 mm diam. near apex; flowers ± square to almost 4-lobed, 2–2.4 mm in both directions, the sides ± straight to jaggedly sigmoid; 3–6 flowers visible in principal spiral, 6–9 in alternate spiral; tepals matte, very minutely and densely papillate, punctate, with few droplets appearing as stamens emerge; lateral tepals 1–1.2(2) mm wide, the inner margins straight to convex, the outer margins 2- rarely 3-sided; pistils semiglossy, minutely papillate, emergent before stamens emerge, dark maroon; stigma ellipsoid, 0.3–0.7(0.9) mm long, depressed medially; stamens emerging in a regular sequence from the base, arranged shortly above the tepals, the laterals preceding the alternates by 14–15 spirals, held in a circle around the pistil; anthers white, drying white to brown, 0.5–0.7 mm long, 0.6–1 mm wide; thecae ovoid, not divaricate; pollen white. *Infructescence* not seen.

A member of series *Multinervia*, *Anthurium ottonis* is known from Bolivia in the Department of La Paz and in Puno, Peru, at 890 to 1,700 (2,500) m in lower montane subtropical moist, lower montane subtropical wet, and subtropical moist forest life zones.

This species is distinguished by its erect-spreading leaves, long, pale-speckled, subterete petioles and narrowly straplike blades, and long-pedunculate inflorescence with a moderately stubby, maroon spadix. It is not confused with any other *Pachyneurium* species and apparently has no close relatives. Although on the majority of dried spec-

imens the anthers appear orange to brown, the type specimen displays white-drying anthers.

A collection (*Bogner 903*) cultivated at the Munich Botanical Garden and represented by two sheets at the Kew Herbarium is similar to *A. ottonis* in most respects, except that it has a prolonged, free-ending sheath 4–11.7 cm long. It may represent a new species.

BOLIVIA. LA PAZ: Prov. Inquisivi, Inquisivi-Circuata, 2,500 m, *Besse et al. 656* (SEL); Prov. Loayza, Circuata-Miquilla, Km 28, 1,560 m, *Besse et al. 1839* (SEL); Prov. Nor Yungas, Coroico, Polo-Polo, 1,100 m, *Buchtien 3659*, 3661 (US), 3660 (GH, US), 3662 (HBG, US); Coroico (Yolosa jct.)-Caranavi, road parallel to Río Coroico, 670–1,280 m, *Davidson 4790* (MO); Río Huarinilla, 4.5 km below Yolosa, then 14 km W on road up Río Huarinilla, 1,200–1,300 m, 16°12'S, 67°50'W, *Solomon 9390* (MO); below Yolosa, 1,450 m, *Solomon 8652* (B, MO); Prov. Sud Yungas, 15 km toward Irupana, Chulumani, 1,700 m, *Beck 4724* (K, M, MO); Yanacachi, Jirupaysi, 1,650 m, *Buchtien 387* (B); Chulumani, 50 km towards Asunta, 890 m, *Beck 12606* (MO); 26 km towards Asunta, past Tajama, 1,300 m, *Beck 12074* (MO). PERU. CUZCO: Urubamba, Machupicchu, 2,000 m, *Bogner 903* (K). PUNO: San Gavón, *Baker 4358* (cultivated at MO) (MO, NY).

***Anthurium oxycarpum* Poeppig in Poeppig & Endl., Nov. Gen. Sp. 3: 83. 1845. TYPE:** Peru. Loreto: Yurimaguas, *Poeppig s.n.* (lectotype, selected here, G). Figures 211–213.

Anthurium strictum N. E. Br ex Engl., Monogr. Phan. 2: 638. 1879. TYPE: Brazil. Acre: Rio Branco, N. E. *Brown s.n.* (K, identified with Kew Negative #2805).

Epiphytic or terrestrial, sometimes epipetric; stem short or elongate, to 60 cm long, 1–3 cm wide; leaf scars inconspicuous, obscured by root mass, 1 cm high, 1.2 cm wide; roots numerous, dense, spreading, green to whitish, smooth to densely pubescent when dried, short, bluntly tapered, 1–7.5 cm long, (1)2–4 mm diam.; cataphylls membranous to subcoriaceous, lanceolate, prominently 1-ribbed throughout, 5.5–12 cm long, acuminate at apex with subapical apiculum 1–2 mm long, light green, drying thin, yellowish to pale tan (B & K yellow 7/5), persisting ± intact, eventually as fine linear fibers. *Leaves* erect to erect-spreading; petioles (2.5)5–15 cm long, 4–9 mm diam., subterete to C-shaped to D-shaped, flattened to narrowly or obtusely sulcate adaxially, the margins blunt, rounded abaxially, the surface dark green, pale-speckled; geniculum slightly thicker than petiole, 1–2.5 cm long; sheath for 3–4 cm long; blades subcoriaceous, narrowly to broadly elliptic to broadly oblanceolate to narrowly obovate, acute to short-