apex above, prominently convex at base and slightly paler than surface below; primary lateral veins (3)4–8 per side, departing midrib at 45–50° angle, weakly arcuate-ascending, slightly acutely raised above, somewhat convexly raised below; interprimary veins obscure; reticulate veins obscure; collective vein arising from near the base or in the upper ⅓ of blade, weakly sunken above, raised below, 5–10 mm from margin. *Inflorescences* erect to erect-spreading; peduncle (17)26–36 cm long, (2)3–5 mm diam., 1.5–7.7× as long as petioles, green tinged with red-violet or purple, terete, sometimes sulcate; spathe reflexed-spreading or sometimes recurled, subcoriaceous to coriaceous, deep red-violet to dark purple (B & K purple 2/7.5), oblong-lanceolate, 2–6.2 cm long, 1.2–1.8 cm wide, broadest near the base, inserted at 30–35° angle on peduncle, abruptly acuminate to cuspidate at apex (the acumen inrolled), rounded to obtuse at base, the margins meeting at 180° angle; spadix red-violet to violet-purple (B & K purple 2/7.5), tapered to somewhat cylindroid, sessile, erect, straight, 3.5–9 cm long, 5–9 mm diam. near base, 3–4 mm diam. near apex, broadest at the base; flowers ± square to rhombic or 4-lobed, 2.2–3.2 mm long, 2.1–3.5 mm wide, the sides straight to smoothly sigmoid, 5–6 flowers visible in principal spiral, 8–9 in alternate spiral; tepals smooth to weakly papillate, matte, weakly punctate; lateral tepals 1–2 mm wide, the inner margins ± straight to convex, the outer margins 2-sided; pistils emergent, dark red-violet; stigma ellipsoid to linear, 0.5–0.7 mm long, brushlike; stamens emerging in a regular sequence from the base, laterals emerging almost to the apex before alternates emerge; filaments exserted, ca. 0.5 mm, 0.6 mm wide; anthers reddish to purple-violet, 0.4–0.8 mm long, 0.6–1 mm wide, inclined over the pistil; thecae ellipsoid to oblong, 0.3 mm wide, not divaricate; pollen cream-yellow (B & K yellow 9/2.5), fading to white. *Infructescence* with spathe persisting; spadix 4.3 cm long, 0.9 cm diam.; berries deep wine-red, ± ovoid, rounded at apex, 4.5–5 mm long, 3–3.5 mm diam.

Anthurium basirotundum is known only from Peru in San Martín Department in the vicinity of Tarapoto in a tropical dry forest life zone at 400 m.

This species is characterized by its small overall size, leaf blades which are broadest generally below the middle and usually rounded to subcordate at base, and by its long-pedunculate inflorescence with a tapered, red-violet to violet-purple spadix and deep wine-red berries.

Anthurium basirotundum is probably most closely related to *A. tarapotense*, which occurs in the same area. The latter differs mainly in its elliptic-oblanceolate leaf blades which are attenuate to long-attenuate (rarely acute) at the base.

The species is named for the leaf blades, which are usually rounded to subcordate at the base.

PERU. SAN MARTÍN: Tarapoto, above Hotel Turista, 400 m, cultivated at SEL (#81-1976-2), *Plowman 5980A* (MO, SEL).

Anthurium bonplandii Bunting, Acta Bot. Venez. 10: 267–268. 1975.

a. Anthurium bonplandii subsp. **bonplandii**. TYPE: Venezuela. Amazonas: Dept. Atures, Río Orinoco near Siquita, between Isla Castillito and San Fernando de Atabapo, 100–140 m, *Bunting et al. 3676* (holotype, MY). Figures 53–55.

Anthurium atropurpureum var. *apertum* R. E. Schultes, Bot. Mus. Leafl. Harvard Univ. 16: 180. 1951. TYPE: Colombia. Amazonas: Jerijerimo, Río Apaporis, *Schultes 12094* (holotype, GH).

Anthurium bonplandii Bunting subsp. *rionegrense* Bunting, Phytologia 64: 459, figs. 1, 2. 1988. TYPE: Venezuela. Amazonas: Dept. Río Negro: San Carlos de Río Negro, 125 m, *Steyermark & Bunting 102741* (holotype, MO).

Terrestrial, rarely epilithic or epiphytic; stem 10–20 cm long, 1–4 cm diam.; roots descending and spreading, sometimes ascending when epiphytic and forming a globose "ant garden," grayish brown when dried and with raphide cells, reportedly with velamen, 5–28 cm long, drying 3–5 mm diam.; cataphylls subcoriaceous, 2–13 cm long, acute at apex, green, drying pale brown, persisting intact or as weathered fibers, once reported to be deciduous. *Leaves* erect-spreading; petioles (6)10–35 cm long, 3–20 mm diam., D-shaped, often broader than thick, flattened to broadly concave and occasionally with a medial rib adaxially, rounded to 4-ribbed abaxially; geniculum slightly thicker than petiole, 0.5–1.5 cm long, sheathing in lower ⅓ to ⅛ of the petiole; blades coriaceous, elliptic to broadly elliptic, rarely somewhat oblanceolate, acute to acuminate at apex (the acumen ± flat or slightly inrolled), usually acute to attenuate (sometimes barely rounded) at base, (10)30–75(100) cm long, (5)10–30(40) cm wide, broadest at or near the middle, the margins usually flat; upper surface glossy to semiglossy, dark green, lower surface ± matte, paler, usually pustular or glandular-punctate; midrib prominently convex above and below,

somewhat raised on both surfaces when dried, glossy, paler than surface below; primary lateral veins (6)7–10(15) per side, departing midrib at (25)45–70° angle, usually arcuate-ascending to the margin, sometimes loop-connecting (especially in the upper ½ to ⅓ of the blade), raised on both sides; interprimary veins very few, obscure when dried; tertiary veins sunken above, raised on both surfaces when dried; collective vein arising from about the middle to the upper ⅓ of blade, 3–15 mm from margin; antimarginal vein arising from the base and continuous with margin. *Inflorescences* ± erect, equal to, shorter than, or longer than leaves; peduncle (18)30–90 cm long, 2–15 mm diam., 1.5–9(12)× as long as petiole, green, ± terete or slightly flattened on one side; spathe spreading-reflexed to reflexed, subcoriaceous, pale green, often with purple nerves or suffused violet-brown, linear-lanceolate to lanceolate, 5–16 cm long, 0.5–2.5 cm wide, broadest near the base, narrowly acute to acuminate at apex (acumen 10 mm long), decurrent at base; stipe 4–23 mm long in front, 3–20 mm long in back; spadix dark purple to reddish at anthesis, grayish green to brown post-anthesis, mostly cylindroid, slightly tapered at apex, erect, (3)5–15(17) cm long, 1–4(6) mm diam. near apex, 3–9 mm diam. near base; flowers rhombic to 4-lobed, (1.8)2.2–2.8 mm long, (1.6)1.8–2.4 mm wide, the sides ± straight or somewhat jaggedly sigmoid, 3–7(8) flowers visible in principal spiral, 5–7 in alternate spiral; tepals pale-punctate, smooth to minutely papillate; lateral tepals 1.2–1.8 mm wide, the inner margins rounded, the outer margins ± straight, 2-sided; pistils emergent, somewhat papillate; stigma squarish to rounded, 1.2 mm long, depressed medially; lateral stamens preceding the alternates by 6–20 spirals; anthers yellowish white, 0.6–0.8 mm long, 0.7–1 mm wide, inclined over and obscuring the pistil; thecae oblong to somewhat triangular, slightly divaricate. *Infructescence* with spathe withered or absent; spadix (5)8–25(35) cm long, 1–2 cm diam., bearing berries in the basal portion only, stipe 5–15 cm long; berries purple, white at base, obovoid, obtuse-truncate at apex, 5–7 mm long, 5–6 mm diam.; pericarp very thickened, with raphide cells; seeds 1–2 per berry, 4–5 mm long, 2–4 mm diam., with mucilage on one end but hanging on to carpel wall by thick band of fibers.

Anthurium bonplandii is known from sea level to 1,400 m throughout much of the northern Amazon basin, ranging from southeastern Colombia to southern Venezuela and to northern Brazil. It occurs on sandstone rocks of the Guiana shield as well as on granite boulders or granitic outcrops (materials originally underlying the Guiana shield) and on white sand deposited by eroded Guiana sandstone on the lowland plateau of the Tertiary Amazon Lakebed (Guerra, 1959).

This species is recognized by its distinctly long-pedunculate inflorescence (the peduncle typically being 1.5–7× as long as the petioles), by the glandular punctations on the underside of the leaf blade, by the tough, leathery pericarp and meager mesocarp in rehydrated berries, and by the seeds attached to the apical end of the inner carpel wall by a thick strand of fibers running midway from the apex to the base of the fruit.

Anthurium bonplandii may be confused with *A. atropurpureum*, which has leaf blades of similar shape and which also occurs on white sand deposits. The latter differs in having generally smaller, eglandular leaf blades which dry greenish (vs. brownish in *A. bonplandii*), as well as a smaller inflorescence and different berries. The berries of *A. atropurpureum* typically have a soft, pulpy mesocarp on rehydration and lack a fibrous attachment to the carpel wall, having instead a mucilaginous appendage, the typical condition for the section. *Anthurium bonplandii* is also similar to *A. guanchezii*, *A. iramirezae*, *A. lanjouwii*, and *A. xanthoneurum*. See those species for a discussion of the differences.

Anthurium bonplandii is variable in its overall morphology, as well as in ecological preferences. There are three subspecies:

Subspecies *cuatrecasii* ranges across the northern fringe of the Amazon basin from southeastern Colombia to the western half of Amazonas in Venezuela at 75–380 m, primarily on rocks. It differs from the other subspecies in its typically rounded or subtruncated leaf bases, longer peduncles and elongated stipe.

Subspecies *guayanum* occurs in the Guiana Highlands of Venezuela, Guyana, and Surinam, usually above 500 m, and differs from the other subspecies in its generally much larger, prominently dark, glandular-punctate (abaxially) leaf blades.

Anthurium bonplandii subsp. *bonplandii* ranges from southeastern Colombia (Vaupés, Meta, Guainia, and Amazonas) east to Venezuela and Brazil in the middle and upper Río Orinoco Basin, the upper Río Negro, and the Rio Trombetas, and south to the states of Amazonas, Pará, and Roraima in Brazil at usually less than 500 m (rarely to 825 m). It is predominantly terrestrial in sandy areas or, less frequently, is found growing on rocks or in open savanna areas, or in primary forest. In

Brazil, it has been reported from "caatinga" forest or "campina abierta." In Venezuela it occurs mostly in a tropical moist forest life zone. Subspecies *bonplandii* is recognized by its elliptic or rarely oblanceolate leaf blades which are acute at the base, and by its raised, caviform stigma. It is highly variable in size, leaf shape, and in the degree and type of glandlike structures on the lower blade surface. It overlaps geographically with the other two subspecies; see the discussions under the latter for further comments.

Particularly noteworthy in subsp. *bonplandii* are a series of collections from southwestern Venezuela in Amazonas along the upper Río Orinoco Basin and the intervening river system connecting the Río Orinoco with the Río Negro, e.g., the Río Casiquiare (including the Río Yatua, one of its tributaries). These collections are notable for their large size, with blades ranging from 63 to 98 cm long and 30 to 48 cm wide. Despite the fact that these collections differ rather radically from most others, they differ little from the largest plants found in populations around nearby San Carlos de Río Negro, where a wealth of collections from a small area enables a more clear assessment of interpopulational variation. Of these, the largest leaf blades observed were those of *Liesner 3778*, which are 85 cm long and 32 cm wide, with 10 primary lateral veins per side. The smallest plants from this area have blades 28 × 11 cm and only 8 pairs of primary lateral veins per side. These smaller plants differ little from collections made along the Upper Rio Negro in Brazil.

At the western edge of its range, the leaf blades of many collections of subsp. *bonplandii* are typically more narrowly oblong-oblanceolate than elsewhere, being up to 5× longer than broad. On average, blades are 2.6× longer than broad and infrequently are more than 3× longer than broad. The blades of most collections from the upper Rio Negro are 2.5–4× longer than broad, while collections from the middle Rio Negro and the upper Río Orinoco drainage range from 1.7 to 3× longer than broad.

The proportional length of the blade vs. the petiole is highly variable, ranging from only slightly longer to 14.4× longer. Blade shape appears to be in no way correlated with blade size, though the generally more narrowly oblanceolate blades of populations in eastern Colombia (Vaupés) have a more narrow range of variation, with blades 1.2–4.7× longer than broad and averaging 2.8× longer than the petioles. Populations in the northern extreme of the range in Amazonas in Venezuela have blades ranging from 1.1 to 8.3× (averaging 3×) longer than the petioles, while those in the middle of the range (upper Rio Negro in Brazil) are less variable, with blades ranging from 2.1 to 6.7× (averaging 4×) longer than the petioles. Populations from northwestern Pará in Brazil have proportionately shorter petioles, with blades ranging from 4 to 14× (averaging 7.9×) longer than the petioles.

An unpublished name, *A. disparile* Schott, represented by Schott Drawing 315 (New York Botanical Garden negative #3951 and microfiche 25: C3) based on a collection made by Linden on the Río Orinoco is *A. bonplandii* Bunting subsp. *bonplandii*.

BRAZIL. AMAZONAS: Cachoeira Republica, Rio Curuquete, *Prance et al. 14596* (NY); Camanaus–Uaupes, *Prance et al. 15690* (F, INPA, K, MG, NY, U, US); San Gabriel da Cachoeira, Morro dos Seis Lagos, Lago do Dragão, 400–450 m, *Farney et al. 1714* (MO); Igarapé do Buião, Manaus, *Rodrigues & Chagas 2010* (INPA); Manaus–Caracarai, km 26, *Prance et al. 3073* (INPA, NY, US); Manaus–Porto Velho, trecho Castanho–Tupana, *Silva et al. 200* (INPA); Manaus–São Gabriel, 00°35′S, 64°40′W, *Alencar 252* (NY); 53 km W of Rio Aripuana, Transamazon Hwy., *Calderon et al. 2705* (INPA, MO, US); Santa Isabel do Rio Negro, Campina de Tamendaui, *Madison et al. PFE 39* (INPA), *241* (INPA); 0°23′S, 65°2′W, *Maas 6679* (F, MO); km 795–790 Transamazonica Hwy., Rodovia do Estanho, 7°35′S, 62°30′W, *Vieira et al. 187* (INPA, MG, MO, NY); Pico Rondon, vic. Km 211 of Perimetral N Hwy., 700 m, 1°32′N, 62°48′W, *Pipoly et al. 6658* (MO, NY), *Prance et al. 28768* (INPA, MO, NY), *28785* (MO, INPA, NY); Reserva Biológica do INPA, Manaus, BR-174, Km 45, 500 m, *Anderson 318, 342* (INPA); Mpo. Manaus, Manaus–Caracarai, Campina Preserve, Km 45, less than 100 m, 1°40′S, 60°05′W, *Croat 62207* (INPA, MO); Reserva Florestal Ducke, Manaus, *Ferreira 5877* (INPA); Rio Brancinho, Rio Cuieras, *Prance et al. 17809, 17858* (INPA, NY); Rio Negro, *Maia et al. 689* (INPA); Barcelos–Tapurucuará, *Nascimento 627* (MG, NY); Iauarete, *Coelho & Francisco 203* (INPA); Ilha das Flores, 50 m, *Cavalcante 655* (GM); *Rodrigues 905* (RB), *906* (MO); Manaus–São Gabriel, Morro dos Seis Lagos, 80 km N of São Gabriel, 100 m, 0°20′N, 66°45′W, *Poole 2055* (INPA, MG, MO, NY); Serra de Uaupes, *Rodrigues & Coelho 1466* (MO), *Rodrigues 10718* (NY); Tamendaui, ca. 40 km below Tapurucuará, *Madison et al. 6241* (MO, SEL), *Maia et al. 252* (INPA); Tapurucuará–Mirím, Rio Marie, *Nascimento 656* (MG, MO, NY); *Projecto Flora Epifita 311* (MO); Rio Uaupes, Jutica, *Luetzelburg 23787* (M, R); Taracua, *Cavalcante 747* (GM); Rio dos Pombos, 9 km W of river, ca. 1.5 km E of Igarape dos Pombos, ca. 64 km E of the Aripuanã, 7°10′S, 60°00′W, *Calderon et al. 2606* (INPA); Serra Araca, 0°48′N, 63°18′W, *Pipoly et al. 6782* (NY); Central Massif, 700 m, 0°50′N, 63°17′W, *Prance et al. 29620* (MO, NY); Mpo. Barcelos, Rio Araca, Jauari, afluente de granito, 00°25′N, 63°25′W, *Cordeiro 242* (MO, NY); Mpo. Manaus, Rio Negro, NW of Manaus, *Madison et al. 6311* (K, SEL, US), *6393* (SEL), *Projecto Flora Epifita 39* (INPA). PARA: Cerro de Cupaty, Caqueta, *Lucke 12298* (GM); Rio Jaramacaru, Óbidos, *Egler 282* (MG, RB); Rio

Negro, *Cavalcante 3125* (MG, NY); Mpo. Altamira, Igarapé Ipixuna, affluent of Rio Xingu, 5 km S of settlement, Arawete Indian Reserve, 4°49′S, 52°31′W, *Balee & Ribeiro 1901* (NY); Mpo. Oriximina, Rio Mapuera, 30 km from Cachoeira Porteira, *Cid et al. 1208* (INPA, NY); ca. 10 km upriver from Cachoeira Porteira, *Davidson & Martinelli 10603* (INPA, MG, MO, US, NY); Rio Parú, Cachoeira Chuvisco, *Cid et al. 2228* (INPA, MG, NY); Rio Trombetas, 4 km from margin of Lake Maecue, *Cid et al. 1499* (INPA, NY); 7 km below Cachoeria Porteira, *Cid et al. 1298* (INPA, MG, MO, NY, US); Mpo. Tucuruí, Represa Tucuruí–Breu Branco, BR 422, Km 25, 90 m, 3°52′S, 49°44′W, *Plowman et al. 9564* (MG, MO, NY); Tucuruí, 100–200 m, *Lisboa et al. 2307* (MG). RORAIMA: Manaus–Caracari, Km 515, along bank of Igarapé Dias, *Steward et al. 131* (NY, INPA); Rio Uraricoera, Canal Maraca, Cachoeira Menori, 61°55′W, *Pires et al. 16792* (INPA, MG); Mpo. São Luiz do Anauá, *Ferreira 9233* (MO). COLOMBIA. AMAZONAS: Río Apaporis, Cachivera de Jirijirimo, 250 m, *Schultes 12094* (COL, GH), *Schultes & Cabrera 14083* (GH, NY, U); Río Caquetá, Caño Solarte, *Palacios et al. 1866* (U); Depto. Vichada, Río Mataveni (confluente of Río Orinoco), 100–140 m, *Bunting et al. 3623* (NY). AMAZONAS–VAUPÉS: Río Apaporis, Jirijirimo, 250–300 m, *Garcia-Barriga 13751* (COL, NY, US), *Schultes & Cabrera 12370* (AMES), *12436* (COL, GH), *13466*, *13517* (GH), *13501*, *15952* (AMES), *14641* (AMES, GH), *14051* (GH, U), *14571* (COL, US); Jinogoje, at mouth of Río Piraparana, ca. 350 m, 0°15′S, 70°30′W, *Schultes & Cabrera 17891* (GH). GUAINÍA: Río Negro, junction of Río Negro, Brazo Casiquiare and Río Guainía, 65 m, 2°00′14″N, 67°07′W, *Davidse & Miller 26577* (MBM, MO, VEN); across river from San Fernando de Atabapo (Venezuela), 120 m, 1°47′N, 67°06′W, *Gentry & Stein 46412* (B, K, MO, VEN), *46413* (MO). META: Llanos Orientales, La Macarena, Río Guayabero, Sabanas de Arenisca, 235–700 m, *Garcia-Barriga 17031* (COL, GH, NY, US). VAUPÉS: Cerro de Circasia 300–400 m, *Cuatrecasas 7178* (COL); Río Guainia, Puerto Colombia, opposite Venezuelan town of Maroa, 250–300 m, 2°40′N, 67°30′W, *Schultes & Cabrera 18242* (AMES); Río Kananari, Cerro Isibukuri, 0°15′N, 70°35′W, *Schultes & Cabrera 15082* (GH); affluent of Río Apaporis, *Schultes & Cabrera 13422* (GH); Río Kuduyari, trib. of Río Vaupes, 200–300 m, 1°15′N, 70°05′W, *Schultes & Cabrera 17877* (GH, MO, U); Río Kuduyari, Sabana Yapobada, 350–400 m, *Schultes 22677* (ECON); Río Negro, San Felipe, below confluence of Ríos Guainia and Casiquiare, *Schultes & Lopez 9330* (GH, NY, US); Río Parana–Pichuna, Mitú, *Zarucchi 1348* (COL, MO); Río Piraparana, tributary of Río Apaporis, *Schultes & Cabrera 17475*, *17523* (GH); Río Vaupes, Mitú–Javarete, *Schultes & Cabrera 19266* (AMES); Cerro de Tipiaca, *Schultes & Cabrera 19307* (AMES, GH, U); Circasia, Mitú, *Zarucchi 2047* (COL, K, MO, US). VENEZUELA. AMAZONAS: 200 m, 5°05′N, 65°35′W, *Colchester 2043* (K); Cerro Moriche, Ríos Manapiare and Ventuari, 150–250 m, *Maguire & Maguire 35533* (NY, VEN); Cerro Neblina Region, Cerro Neblina, Río Mawarinuma, 140 m, 0°50′N, 66°10′W, *Croat 59326* (MO, RSA), *59388* (CM, MO), *59627* (B, K, MO, RSA, TEX); Loma de las Piñas (Pineapple Ridge), 1.5 km S of Neblina Base Camp, 150–215 m, 0°49′15″N, 66°9′40″W, *Nee 30554* (MO, NY, VEN); Río Mawarinuma, Cañón Grande, 350 m, 0°50′N, 66°02–06′W, *Davidse & Miller 27132* (VEN), *27174* (MO); 0.5–1.5 km SE of Cerro Neblina, 140 m, 0°50′N, 66°10′W, *Liesner 16147* (MO); Río Baría, 80 m, 1°27′–1°10′N, 66°32′–66°25′W, *Davidse 27683* (VEN); mouth of Río Pasimoni–junction with Río Baría and Río Yatua, 80 m, 1°53–27′N, 66°35–33′W, *Davidse 27780* (MO); Cerro Yapacana, 125–400 m, 3°45′N, 66°45′W, *Steyermark & Bunting 86762*, *103060* (VEN); 825 m, *Steyermark & Bunting 103169* (VEN); Cerros del Casiquiare, 120 m, *Vareschi 6626* (VEN); Río Negro, Piedra de Cocui, *Schultes & López 9423* (GH, US); slope of Cerro Aracamuni, 600 m, *Liesner & Carnevali 22311* (MO); Río Orinoco, Gran Laja near Nericagua, *Morillo 7451* (VEN); 5 km above junction with Caño Cotua, SE of Cerro Yapacana, 100 m, 3°45′N, 66°50′W, *Steyermark & Bunting 102991* (MO, VEN); Cerro Yapacana, 3°45′N, 66°50′W, 140 m, *Sytsma et al. 5103* (WIS); Río Paragua, vic. "Minas de Manaima," 6°7′N, 63°45′W, *Stergios 10289* (MO, PORT); 6°22′N, 66°22′W, *Stergios 10129* (MO, PORT); Caño Cupaven, opposite mouth of Río Atabapo, 125 m, *Wurdack & Adderley 42828* (NY, US, VEN); Sanariapo–point 3 hr upriver by 33 h.p. motor, *Bunting 4255* (MO, MY); Dpt. Casigquiare, Río Temi, Yavita–Pimichín, 5 km from Pimichín, 125–140 m, *Bunting et al. 3774*, *3867* (MY); Yavita–Maroa, 125–140 m, *Bunting et al. 3976* (NY); Río Yatua, base of Cerro Araucaua, 125 m, 1°35′N, 66°10′W, *Steyermark & Bunting 102532* (MY, VEN), *102543* (VEN); Piedra Araucaua, 110–550 m, *Maguire et al. 41601* (NY); San Carlos de Río Negro Region, 3–4 km N of San Carlos de Río Negro toward Solano, *Plowman 13536* (MO); Km 11 NE of San Carlos de Río Negro on road to Solano, 75 m, 1°53′N, 67°02′W, *Davidse & Miller 26556* (MO, VEN, W), *26559* (VEN); 115 m, *Berry 1366* (MO, VEN); *Stergios & Aymard 7742* (PORT); near airport, *Croat 59258* (AAU, MO, NY, US), *59260* (B, CAS, F, M, MO, NY); *Steyermark & Bunting 102741* (MO, VEN); 2–6 km NE of San Carlos de Río Negro, 120 m, 1°56′N, 67°03′W, *Liesner 3778*, *6309* (MO), *6137* (VEN), *3277* (MO, SEL), *6402*, *6568*, *6569* (MO, VEN), *Morillo & Hasegawa 5093* (VEN); San Carlos–Solano, 2 km N of San Carlos, 100 m, *Morillo & Villa 5360* (VEN); Dpt. Atabapo, W base of Cerro Yapacana–Caño Cotua headwaters, 100 m, 3°38′N, 66°52′W, *Davidse et al. 17270* (VEN); Caño Caname, Curital de Caname, 100 m, 3°40′N, 67°22′W, *Davidse et al. 16966* (VEN); Dpt. Atures, Isla de Ratón, Carmen, 5°08′N, 67°54′W, *Carnevali et al. 1527* (MO); Río Orinoco, La Esmeralda, *Croizat 208* (NY); Siquita, 100–140 m, *Bunting et al. 3676* (MY); Puerto Ayacucho–Sanariapo, *Bunting 4279* (NY); Sanariapo–San Pedro, *Bunting 4239* (NY), Serranía de Yutaje, 0–1.5 km E of Río Coro–Coro, 4 km N of settlement of Yutaje, 270 m, 5°40′N, 66°7′30″W, *Liesner & Holst 21263* (MO); 3 km W of Río Coro–Coro, 5–8 km NW of settlement of Yutaje, 700–1,000 m, 5°40′N, 66°9′W, *Liesner & Holst 21816* (AAU, B, MO). APURE: Piedra de San Vincente, 80–160 m, *Davidse & Gonzalez 14537* (MO, NY, US, VEN); Dtto. Pedro Camejo, NW of Paso de Cinaruco, 60–65 m, *Davidse & Gonzalez 12467*, *12612* (MO, VEN); Río Meta–Río Cinaruco, Caño El Caballo, 75 m, *Davidse & Gonzalez 15887* (MO, VEN), *13945* (MO, VEN); at jct. of Caño Siriaco, 70 m, *Davidse & Gonzalez 14147* (MO, VEN); Dtto. San Fernando, 60 m, *Davidse & Gonzalez 13895* (F, MO VEN). BOLÍVAR: Mpo. Raul Leoni, 64 km SE of Pijiguaos, 550 m, 06°09′N, 66°23′W, *Delgado 298* (MO).

b. Anthurium bonplandii subsp. **cuatrecasii** Croat, Aroideana 9(1–4): 11–14. 1986. TYPE: Venezuela. Amazonas: Dept. Atabapo, vic. Puerto Ayacucho, along rd. from Puerto Ayacucho to Sanariapo, *Croat 55065* (holotype, MO 2934844; isotypes, B, DUKE, GH, NY, RSA, US, VEN). Figures 56–58.

Terrestrial or epilithic, occasionally epiphytic; stem often caespitose, 1–4 cm diam.; roots dense, mostly descending, the uppermost ascending, grayish when dried, slender and elongate, to 25 cm long, 2–5 mm diam.; cataphylls coriaceous, 4–14 cm long, acute to weakly acuminate at apex, persisting ± intact, eventually dilacerating into fibers at base. *Leaves* erect; petioles 4–30(40) cm long, drying 3–11 mm diam., C-shaped or nearly D-shaped, broadly and sharply sulcate to nearly flattened, with the margins prominently raised adaxially, rounded abaxially; geniculum 0.5–2 cm long; blades coriaceous, oblanceolate, often ± elliptic to slightly ovate-elliptic, rarely oblong-elliptic, acute to weakly acuminate at apex, narrowly rounded to truncate at base, sometimes obtuse, (16)25–55(70) cm long, 4–25(32) cm wide, broadest at or above the middle, the margins weakly undulate; upper surface semiglossy to glossy, medium to dark green above, the lower surface semiglossy, paler, pustulate or glandular-punctate below; midrib scarcely raised at base above, becoming convexly raised toward the middle, prominently convexly raised below; primary lateral veins 5–10 per side, departing midrib at (30)40–55(75)° angle, usually weakly arcuate-ascending to the margin, loop-connecting in the upper ⅓ of the blade, convexly raised; interprimary veins occasionally present; tertiary veins weakly etched above, slightly raised or flat and darker than surface below, prominulous when dried; collective vein arising from near the apex, less prominent than primary lateral veins, often absent, 2–10 mm from margin. *Inflorescences* erect; peduncle (19)30–100 cm long, drying 5–10 mm diam., 1.3–7× as long as petiole, terete; spathe reflexed, usually twisted or recurled, membranous-chartaceous to subcoriaceous, pale yellowish green, sometimes suffused with reddish purple, linear-lanceolate, 5–20 cm long, 0.5–2.5 cm wide, broadest near the base, acuminate at apex (the acumen ca. 5 mm long), decurrent at base; stipe 15–40 mm long; spadix pale green, becoming pink to maroon at maturity, drying green, tapered, erect, (6)10–25 cm long, 5–15 mm diam. near base, 3–6 mm diam. near apex, broadest at the base; flowers rhombic to 4-lobed, drying 1.6–2.6(3.0) mm long, (1.2)1.5–2.6 mm wide, the sides smoothly sigmoid, (4)5–8 flowers visible in either spiral; tepals smooth to somewhat roughened, sometimes whitish muricate; lateral tepals 1.2–1.8 mm wide, the inner margins convex, the outer margins 2–3-sided; pistils ± square, barely or not at all emergent; stigma oblong, ± rectangular, 0.6 mm long, densely papillate; filaments exserted ca. 1 mm; anthers 0.4–1 mm long, 0.4–1.2 mm wide, contiguous, surrounding pistil; thecae drying ± ellipsoid, divaricate. *Infructescence* with spathe withered or absent; spadix (5)10–22 cm long, 0.8–2 cm diam., bearing berries in the basal portion only; berries (immature) green, obovoid, ± truncate at apex, 4–6 mm long, 3–5 mm diam.; pericarp thickened, with raphide cells; seeds 2 per berry, with raphides on the surface, broadly ellipsoid, 4–5 mm long, 1.8–3 mm thick, 1.2–1.4 mm diam., attached to apical end of carpel by strand of fibers.

Anthurium bonplandii subsp. *cuatrecasii* ranges from southern Colombia (Mitú in the Serranía de la Macarena) northeast to the drainage of the middle and upper Río Orinoco in Venezuela (Amazonas) at 75–380 m. Principally found on granite boulders, it often has a caespitose habit, growing in humus tufts either on granite outcrops or terrestrially on soils with a granitic base. It occurs in the tropical dry, tropical moist, and premontane wet forest life zones.

Subspecies *cuatrecasii* differs from the other two subspecies of *A. bonplandii* in having leaves which mostly dry green or greenish and are usually rounded to narrowly truncate at the base, and by its long-pedunculate inflorescence with a usually long-stipitate spadix.

The species is difficult to separate from subsp. *bonplandii* in regions of geographical overlap such as the Mitú area of Vaupés in eastern Colombia or the Middle Orinoco River Basin. *Schultes & Cabrera 19709*, from the Rio Vaupés area near Mitú in Colombia, with both long- and short-stipitate spadices, exemplifies such taxonomic difficulty. It is possible that this collection, and others within this range of sympatry, are the result of local hybridization involving subsp. *bonplandii*.

COLOMBIA. GUIANÍA: Río Orinoco, S of Casuarito, Lejas, 90 m, 5°40′N, 67°37′W, *Davidse & Miller 26370* (MO); across river from San Fernando de Atabapo (Venezuela), 120 m, 1°47′N, 67°06′W, *Gentry & Stein 46412* (B, K, MO, VEN). META: Mun. El Refugio, Parque Nacional Sierra de la Macarena, 10 km E of Refugio, 410 m, *Callejas & Arias 6475* (HUA, MO); Río Guayabero, 10 km below Caño Lozada, 500 m, *Pinto & Jaramillo 208*

(COL); 250 m, *Echerverria 2054* (COL). VAUPÉS: Cerro Mitú, 380 m, *Cuatrecasas 6885* (COL, US), *Schultes et al. 24202* (AMES), *Schultes 22702* (GH); Cerro Mitú–Río Vaupés, 200 m, *Soejarto & Lockwood 2495* (F, K, MEDEL); 350 m, *Maguire et al. 44103* (NY, US); Río Vaupés, Mitú, 250 m, *Schultes & Cabrera 13912* (GH, U); Mitú–Javarete, Arara Cachwira, *Schultes & Cabrera 19397* (GH); Raudal de Yurupari, near Mitú, 0°40′N, 70°30′W, *Schultes & Cabrera 19709* (AMES, GH, MO, NY, U); Mitú, *Zarucchi 1676* (COL, K, MO, US); 350 km above Mitú, Yurupari, 220 m, *Cuatrecasas 6963* (COL, US); Río Inirida, Raudal Guacamayo, 180 m, 69°45′W, *Fernández 2156* (COL, F, US); Río Karuru (tributary of Río Vaupés), Mesa de Yambí, 300–350 m, *Schultes & Cabrera 19147* (AMES), *19194* (AMES, GH, U); Río Kuduyari (tributary of Río Vaupés), Yapoboda, 230–270 m, 1°15′N, 70°05′W, *Schultes & Cabrera 14257* (GH), *14273* (GH, U), *Schultes et al. 18456* (AMES), *Garcia-Barriga et al. 15823A*, *15823* (COL, GH). VICHADA: Parque Nacional Natural "El Tuparro," Río Orinoco at mouth at Río Tuparro, 100 m, 5°15′N, 67°51′W, *Zarucchi & Barbosa 3416* (MO). VENEZUELA. AMAZONAS: *Bogner 960* (M); Caño Mosquito, Caño Marieta, *Lister 266* (K); Puerto Ayacucho Region, vic. Puerto Ayacucho, *Huber 612* (M, MO, VEN), *Plowman 7742* (F, K, MO, SEL), *Wessels Boer 1904* (MO, U), *Williams 18379* (VEN); Puerto Ayacucho–Sanariapo, Río Cataniapo, near airport, 100 m, *Croat 55065* (B, MO, NY), *Gentry & Berry 14438* (MO), *Trujillo & Pulido 14958* (MY), *Williams 16037* (F); 3 km N of Puerto Ayacucho, 140–180 m, *Morillo 6753* (MY, VEN); 8 km S of Puerto Ayacucho, Estación de Piscicultura, 85 m, 5°36′N, 67°37′W, *Davidse & Huber 14894* (MO), *Davidse & Miller 26343* (MO); 20 km S of Puerto Ayacucho, N of Caño Garcitas, 100–130 m, 5°33′N, 67°33′W, *Carnevali & Guánchez 1493* (MO); 23 km NE of Puerto Ayacucho, road to El Burro, 80–150 m, 5°51′N, 67°29′W, *Davidse & Huber 15282* (MO, VEN); Isla de El Ratón, 100 m, *Williams 13446* (US, VEN); Río Cataniapo, 80 m from bridge to Sanariapo, 6°25′N, 67°25′W, *Castillo 1237* (MO); Río Guayapo, 10–15 km above mouth of Río Guayapo, tributary to Río Sipapo, 160 m, *Morillo & Ishikawa 3432* (VEN); Río Orinoco, middle and upper parts, *Pannier-Schwabe 1160* (VEN); Santa Rosa–mouth of Río Vichada, Laja Picure, just below Raudal Picure, 100 m, *Maguire et al. 36194* (NY, VEN), *36197* (NY, US, VEN); La Esmeralda, *Medina 349* (VEN); Dpt. Atabapo, Caño Cotua, Yapacana, *Huber 1778* (VEN); Cerro Yureba, Salto Yureba, lower Ventuari, 350 m, 4°03′N, 66°01′W, *Liesner 18654B* (MO); Río Ventuari, 20 km E of Río Orinoco junction, 98 m, 4°03′N, 66°49′W, *Huber 1853* (VEN). BOLÍVAR: mouth of the Paraguaza, Laja del Zamuro, 150 m, *Trujillo 10756* (MY); vic. Minas de Manaima, middle Río Paragua, 6°7′N, 63°45′W, 300 m, *Stergios 10291* (PORT); Río Orinoco, rocky outcrops on Isla Sta. Elena, 100–150 m, *Wurdack & Monachino 39874* (F, NY, US, VEN); Río Paragua, *Badillo 1451* (VEN); Dtto. Cedeño, 35 km SW of Caicara del Orinoco, 100–300 m, 7°30′N, 66°20′W, *Steyermark et al. 131274* (MO).

c. Anthurium bonplandii subsp. **guayanum** (Bunting) Croat, comb. nov. *Anthurium guayanum* Bunting, Acta Bot. Venez. 10: 268. 1975. TYPE: Venezuela. Bolívar: Chimantá Massif, NW part of Abacapa Tepuí, 850–1,100 m, *Steyermark 75100* (holotype, VEN 2005409; isotypes, F, MO, NY). Figures 60–62.

Anthurium corocoroense Bunting, Phytologia 64: 462. 1988. TYPE: Venezuela. Amazonas: Dpt. Atures, Cerro Yutaje, northwest ridge, in montane woodland, 1,500 m, *Maguire & Maguire 35425* (holotype, NY).

Anthurium guaiquinimae Bunting, Phytologia 64: 462. 1988. TYPE: Venezuela. Bolívar: Dtto. Heres, summit of Cerro Guaiquinima, 1–2 km by river above Salto Szczerbani (Río Caparo), 5°44′04″N, 63°41′08″W, 750 m, *Steyermark et al. 113258* (holotype, MO 2581469; isotype, VEN).

Terrestrial or occasionally epiphytic; stem to ca. 20 cm long; internodes short, 1–7 cm diam.; roots dense, spreading, the uppermost ones ascending, thick and blunt at apex, 5–12 cm long, 1–5 mm diam.; cataphylls subcoriaceous or fleshy, 2.5–12 cm long, acute at apex, tinged with red, persisting as coarse linear fibers at base. *Leaves* erect to arching when large; petioles (3)6–30(42) cm long, 8–15 mm diam., C-shaped or sharply D-shaped, sulcate to flattened with the margins sometimes weakly raised and a broad medial rib occasionally present adaxially, rounded abaxially, sometimes 1–2-ribbed; geniculum slightly thicker than petiole, 0.5–1 cm long; blades coriaceous, oblanceolate to obovate, rarely broadly elliptic, acute to obtuse to rounded at apex, long-attenuate to acute or obtuse at base, 30–80(140) cm long, 20–40(65) cm wide, broadest above the middle, the margins undulate; upper surface semiglossy, dark green, lower surface semiglossy to matte, paler and with pustules and glandular-punctations; midrib flat to broadly sulcate at base, sometimes with faint medial rib, becoming prominently convex toward the apex above, higher than broad at base, becoming convexly raised toward apex below; primary lateral veins 6–9(13) per side, departing midib at 40–60° angle, ascending and weakly arcuate to the collective vein, loop-connecting in the upper ⅓, raised in grooves above, raised and paler than surface below; tertiary veins sunken above, raised below; collective vein arising in the upper ⅓ of blade, almost as prominent as primary lateral veins, or often absent, 5–10 mm from margin. *Inflorescences* erect-spreading, nearly as long as or longer than leaves; peduncle 24–96 cm long, 4–10 mm diam., (1.5)4–5(7)× as long as petiole, green tinged with maroon or purple, terete; spathe spreading-reflexed, sometimes inrolled, coiling-recurled or reflexed, subcoriaceous, pale to medium green, sometimes suffused with purple, oblong-lanceolate, (4)8–

18(24) cm long, 1–3.5 cm wide, broadest near the base, acute to shortly acuminate at apex (the acumen ca. 10 mm long), obtusely clasping at base; spadix greenish when young, becoming reddish to purple or purple-brown at anthesis, sessile or subsessile, ± cylindroid, shortly to gradually tapered at apex, erect, 5–33 cm long, ca. 5–7 mm diam. near base, 2–3 mm diam. near apex; flowers (dried) rhombic, (1.6)2.8–3.4 mm long, (1)1.8–2.8 mm wide, the sides straight parallel to spiral, smoothly and weakly sigmoid perpendicular to spiral; 3–7(9) flowers visible in principal spiral, 4–6 in alternate spiral; tepals minutely papillate, sometimes whitish muricate, matte; lateral tepals 1.4–2 mm wide, the outer margins 2-sided, the inner margins broadly convex; pistils squarish, weakly emergent; stigma rectangular, 0.6 mm long, appearing papillate; stamens emerging in a regular sequence from the base, the laterals preceding the alternates by 7–10 spirals, the 3rd stamen preceding the 4th by 6–8 spirals, arranged in a circle, inclined over and obscuring the pistil; anthers yellow, 0.4–0.6 mm long, 0.5–0.8 mm wide; thecae oblong, 0.2–0.3 mm wide, slightly divaricate; pollen white. *Infructescence* with spathe withered, eventually deciduous; spadix 8–35 cm long, to 2 cm diam., bearing berries in the basal portion only, the apical portion sometimes weathering away; berries reddish purple, white in basal ⅓, obovoid, 6–10 mm long, 5–8 mm diam.; pericarp thickened, with raphide cells; seeds 1 or 2 per berry, reddish violet, ellipsoid, weakly flattened, 3–6 mm long, 2–5 mm diam., 1–2 mm thick, attached to carpel wall at radicle end and by a thick strand of fibers.

Anthurium bonplandii subsp. *guayanum* occurs in the Guiana Highlands of Venezuela, Brazil, Guyana, and Surinam, most material being from Bolívar State in Venezuela, at (100)400 to 1,500 m on sandstone outcrops, sandstone boulders or in pure white sand deposits in open areas and in partial shade. It is ecologically variable, occurring in premontane moist, premontane wet, premontane rainforest, and tropical wet forest life zones.

This subspecies is characterized by its usually large, often broad, coriaceous leaf blades which have unusually dark and conspicuous glandular punctations on the lower surface.

It is distinguished from subsp. *bonplandii* mainly by its oblanceolate to obovate (vs. mostly elliptic) leaf shape, and from subsp. *cuatrecasii* by the leaf blades being usually acute at base and drying brown (vs. greenish) and by the sessile to subsessile (vs. usually markedly stipitate) spadix. Both of these subspecies occur at lower elevations than subsp. *guayanum*, usually below 500 m.

The subspecies *guayanum* may be easily confused with the other two subspecies of *A. bonplandii* in areas where their ranges overlap, especially in the upper Río Orinoco drainage and along the rivers of southern Amazonas, Venezuela, that flow into Río Negro.

Two species described recently by Bunting (1988) are synonymized here. Both are compared with only *A. bonplandii*. *Anthurium corocoroense* differs in no way from typical *A. bonplandii* subsp. *guayanum*, and *A. guaiquinimae* differs only in a minor way. Characters which are stressed as important are the broad spathe (to 2.5 cm wide) and the abruptly rounded leaf base. The spathe of subsp. *guayanum* may range to 3.5 cm wide and the abruptly rounded leaf base is an occasional feature on some material of subsp. *guayanum* (see for example *Davidse & Miller 27174* from Cerro Neblina and *Geyskes 16* from Surinam).

BRAZIL. RORAIMA: Serra dos Surucucus, NE of Mission Station, 1,000–1,400 m, 2°42′N, 63°33′W, *Prance et al. 10010* (INPA, NY). GUYANA. MAZARUNI-POTARO REGION: upper Mazaruni River Basin, Karowrieng River, above Maipuri Falls, 550 m, 5°42′N, 60°03′W, *Pipoly & Alfred 7635* (US). SURINAM. Arrowhead basin, Tafelberg, 500 m, *Maguire 24458* (NY, US); Emma Mts., W slope, 600 m, *Boer 1481* (NY); Gonggrijp top, 950 m, *Daniels & Jonker 1286* (U); Gonggrijp top-Hendrik top, Stahel top, 700 m, *Daniels & Jonker 807* (NY). VENEZUELA. AMAZONAS: Dpt. Atures, Río Coro-Coro, W of Serranía de Yutaje, 8 km N of Yutaje, 650–750 m, 5°41′30″N, 66°07′30″W, *Holst & Liesner 3128* (MO); Río Manapiare, Serranía Yutaje, Caño Yutaje, 1,500 m, *Maguire & Maguire 35425* (NY, VEN); Río Orinoco, Esmeralda Ridge, 150–200 m, *Maguire & Wurdack 34642* (NY, VEN); Dpt. Atabapo, Cerro Huachamacari, 1,000 m, 3°39′N, 65°43′W, *Liesner 18228* (MO); Duida-Marahuaca, 1,000–1,200 m, 3°34′N, 65°32′N, *Liesner 25547* (F, DUKE, MO, US); Serranía del Parú (Aroko), 1,100 m, 4°31′N, 65°35′W, *Huber 4345* (VEN); Dpt. Río Negro, Cerro Neblina, N of Puerto Chimo, 500–700 m, 0°50′N, 66°06′W, *Davidse & Miller 27384* (MO); along Río Mawarinuma, Cañón Grande, 300 m, 0°50′N, 66°02-06′W, *Davidse & Miller 27245* (MO). BOLÍVAR: 0–6 km S of El Puaji, 800–900 m, 4°30′N, 61°35′W, *Liesner 19718, 19782* (MO), *Liesner & Holst 18799* (MO); Esmeralda Ridge, Esmeralda, 100 m, *Tate 189* (NY); Santa Elena–Icabarú, 106 km SW of Santa Elena, 13 km NE of Icabarú, Esmeralda, 750 m, 4°19′N, 61°46′W, *Croat 54062* (B, F, GH, MO, US); Canaima, 800 m, *Ferrari 1106* (MY), *Trujillo 6015* (MY), *Bunting 4346* (NY); Quebrada Los Brasileros-road to Playa Blanca and Río Uaiparú, SW of Icabarú, 450 m, 4°20′N, 61°48′W, *Steyermark et al. 117747* (MO, VEN); Cerro Bolívar, Piar, 750 m, *Aristeguieta 2275* (NY); Cerro Guaiquinima, 300 m, *Maguire 32743* (NY, VEN); Salto del Río Szczerbanari (Río Carapo), 1–2 km above Salto Szczerbanari, 750 m, 5°44′N, 63°41′W, *Steyermark &*

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); Dtto. 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); Dtto. 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 Cascajál, 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 lateralis (5)10–15 utroque. Pedunculus 21–58 cm longus, angulatus; spatha 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, ovoideus.

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, exserted, 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,