600 m, Schunke 13648 (IBE, MO). SAN MARTÍN: hills above Chazute, 200-300 m, 6°34'S, 76°12'W, Knapp 8349 (MO); Tarapoto, Ule 5 (B); 360-460 m, Kennedy 3529 (F); Tarapoto-Yurimaguas, 10.6 km from junction with road to Rio Huallaga, 530 m, 06°30'S, 76°21'W, Croat 58115 (IBE, JBGP, K, MO, NY, USM), 58116 (AAU, MO, P, QCA, SEL, U, UCLA, USM, VDB), 58117 (B, CAS, CM, C, GH, K, LE, M, MO, US, USM, VEN, W, WIS); Rio Mayo, Tarapoto-Moyobamba, between Km 562 and 563, 15 km W of Tabalosos, 57 km W of Tarapoto, 600 m, 6°15'S, 76°41'W, Croat 58130 (CM, IBE, KYO, MO, NY, SEL, USM); Dtto. Tarapoto, Tarapoto-Yurimaguas, near Km 10, 700 m, Rimachi 5369 (IBE).

Anthurium tenaense Croat, sp. nov. TYPE: Ecuador. Napo: along road between Tena and Puyo, 58.1 km N of Puyo, 600 m, Croat 49631 (holotype, MO 2738143). Figures 313, 314.

Planta epiphytica; caulis erectus; petiolus 18-19 cm longus, ca. 5-6 mm diam., D-formatus; lamina oblongooblanceolata ad oblongo-elliptica, 37-42 cm longa, 9-9.5 cm lata; pedunculus 19.5 cm longus; spatha 8 cm longa, 1 cm lata; spadix (immaturus) 6 cm longus, 3 mm diam.

Epiphytic; stem erect; internodes short, roots numerous, drying whitish; cataphylls unribbed, 6 cm long, drying grayish brown, persisting intact, eventually shredding at base. Leaves with petioles (8-9)18-19 cm long, ca. (3-4)5-6 mm diam., \pm D-shaped, with obtuse medial rib and with the margins sharply raised adaxially, rounded abaxially; geniculum drying slightly darker and narrower than petiole, (0.4)0.6-0.9 cm long; sheath 2.5-5.5 cm long, free-ending; blades coriaceous, narrowly oblong-elliptic, acute to long attenuate at apex, acute to obtuse (rounded) at base, (23.2)32.5-69 cm long, (5.0-5.6)9-9.5 cm wide, broadest at or above the middle, the margins weakly undulate; both surfaces drying matte, reddish brown, slightly paler below; midrib obtusely angular to broadly convex at base, becoming narrowly acute toward the apex above, more prominently raised below, bluntly acute, becoming narrowly convex toward the apex, darker than surface when dried; primary lateral veins 5-8 per side, departing midrib at 65-90° angle, prominently arcuate to the margin, drying convexly raised and darker than surface above and below; interprimary veins not numerous, less prominent than primary lateral veins; tertiary veins darker than surface when fresh, prominulous; reticulate veins visible on either surface; collective vein arising from near the apex, probably sunken above, raised above and below when dried, 4-10 mm from margin. Inflorescences with peduncle (19.5)22.5-60 cm long, (2-3)6-9 mm diam. when dried, ca. $(1.5)2.5-3 \times$ as long as petiole; spathe

green, subcoriaceous, lanceolate with acumen inrolled, (7.6)9–15 cm long, 1–2.5 cm wide, acute at apex, long attenuate at base; spadix green, cylindric to long-tapered, 6–18 cm long, 3–7 mm diam. near base, 1–2 mm diam. near apex; flowers rhombic to 4-lobed, (1–1.5)1.8–2.3 mm long, (0.8– 0.9)1.6–1.8 mm wide, the sides moderately straight to jaggedly to smoothly sigmoid; (6–7)8–17 flowers visible in principal spiral, 5 in alternate spiral; tepals minutely granular-papillate, lateral tepals (0.6)0.8–10 mm wide, \pm shield-shaped, the inner margins straight to broadly rounded, the outer margins irregularly (2–3)3–4-sided; exposed portion of the pistil rectangular; stigma slitlike, 0.2–0.4 mm long.

Anthurium tenaense is known from Napo Province, Ecuador, near Tena (hence the name), in a tropical wet forest life zone at 400-600 m.

This species is characterized by its thick, more or less elliptic blades, which dry brown, and by its D-shaped petiole, which is rounded abaxially with a broad, obtuse rib, and with raised margins adaxially.

Anthurium tenaense is not easily confused with any other species, although it bears a resemblance to *A. uleanum*, which has thinner leaves mostly drying dark brown, and to *A. harlingianum*, which has broader leaves, more primary lateral veins (12-23) per side, and a slightly to conspicuously curved, salmon-pink to pale violet spadix.

ECUADOR. NAPO: Tena-Puyo, 58.1 km N of Puyo, 600 m, Croat 49631 (MO); Tena, Estación Biológica Jatun Sacha, 8 km E of Misahuallí, 1°04'S, 77°36'W, 400 m, Cerón 6073, 6074 (MO).

- Anthurium uleanum Engl., Pflanzenr. IV. 23B(Heft 21): 74. 1905.
- a. Anthurium uleanum var. uleanum. TYPE: Brazil. Amazonas: Rio Juruá Mirim ("Miry"), Ule 5731 (holotype, B; isotypes, G, MG). Figures 315-317.
- Anthurium tenuispadix Engl., Pflanzenr. IV. 23B(Heft 21): 73. 1905. TYPE: Brazil. Amazonas: Rio Juruá Mirim ("Miry"), Ule 5597 (holotype, B; isotypes, G, MG).
- Anthurium tessmannii K. Krause, Notizhl. Bot. Gart. Berlin-Dahlem 9:260. 1925. TYPE: Peru. Loreto: Prov. Requena, Cumaria, Río Ucayali, 225 m, Tessmann 3351 (holotype, B).

Epiphytic; stem to 15 cm long, ca. 2.5 cm diam.; roots dense, green to whitish, smooth to velutinous, 2-5 mm diam.; cataphylls lanceolate, straight to curved, subcoriaceous, 2-11.5 cm long, acute to acuminate at apex, drying reddish brown (B & K 740

vellow-red 4/10), persisting semi-intact, weathering to reticulate fibers, apex sometimes remaining semi-intact. Leaves erect-spreading; petioles (3)10-36 cm long, 2-10 mm diam., D-shaped, sulcate adaxially with medial rib and acute margins, rounded or 2-7-ribbed abaxially; geniculum shaped like petiole, paler and thicker, 0.3-2 cm long; sheath 2.5-6 cm long; blades subcoriaceous, oblong-elliptic to oblong-oblanceolate to obovate, acute to acuminate at apex (the acumen flat), attenuate to acute at base, rarely truncate or subcordate, 20-65 cm long, 5.5-24 cm wide, broadest at or above the middle, the margins broadly undulate; upper surface semiglossy, medium green, drying gray to greenish brown, lower surface matte to semiglossy, slightly paler, drying greenish to gray-green to brown; midrib acutely raised above, acutely to obtusely or convexly raised below; primary lateral veins 5-11 per side, departing midrib at 30-85° angle, straight to arcuate to the margin, acutely raised; tertiary veins prominulous, raised on both surfaces on drying; collective vein arising from near the apex or absent, rarely from below the middle, sunken above, prominulous below, 4-8 mm from margin. Inflorescences erect to spreading or spreading-pendent, usually shorter than leaves; peduncle 14-38 cm long, 3-6 mm diam., rarely less on drying, $0.5-3.7(6) \times$ as long as petioles, terete, firm, flexible; spathe spreading to reflexed, rarely erect, subcoriaceous, matte abaxially, medium to pale green, sometimes tinged with red at margins, lanceolate to oblong-lanceolate, 3.5-14 cm long, 0.6-2.7 cm wide, broadest near the base, inserted at 30-50° angle on peduncle, acute to acuminate at apex (the acumen inrolled), acute to obtuse (sometimes decurrent 5-17 mm) at base; stipe 3-7 mm long in front, 2-5 mm long in back; spadix usually pale reddish to purplish (B & K red 8/10), sometimes white to pale green, usually appearing glaucous, cylindroid to slightly tapered, curved, erect, (3)5-15 cm long, 3-5 mm diam. midway, 2-3 mm diam. near apex; flowers rhombic to 4lobed, scarcely distinguishable, margins obscure, 1.8-2.5 mm long, 1.7-2.5 mm wide, the sides straight to jaggedly sigmoid; 6-10 flowers visible in principal spiral, 6-8 in alternate spiral; tepals matte, weakly papillate, pale olive; lateral tepals (0.5)2-2.2 mm wide, the inner margins broadly rounded to straight, the outer margins 2-3-sided; pistils weakly raised, not emergent, white to pale pinkish; stigma ellipsoid, 0.3 mm long; stamens emerging promptly in a regular sequence from the base, held well above the tepals then retracting to the tepal level, the laterals preceding the alternates by ca. 4-5 spirals, the 3rd stamen preceding the

4th by ca. 2 spirals; anthers white to pinkish, 0.4 mm long, 0.4–0.5 mm wide, inclined over and obscuring the pistil; thecae oblong, divaricate or not; pollen pale yellow, drying white. *Infractescence* \pm pendent; spadix to 25 cm long, 1 cm diam.; berries reddish violet, 5 mm long, 2–4 mm diam.; seeds 1–2 per berry, 2.2–2.5 mm long, 0.8–0.9 mm thick, 1.2–1.3 mm wide.

Anthurium uleanum is endemic to the upper Amazon basin, ranging from Ecuador and southern Colombia (Meta, Amazonas, and Vaupés), to Peru (Loreto, Huánuco, Amazonas, and Ucayali), and western Brazil (Acre and Amazonas). It occurs below 550 m in tropical moist, premontane wet, and subtropical wet forest life zones.

This species is distinguished by its long-petiolate, brown-drying leaves, long peduncle, spreading spathe and slender, mostly pale purple, glaucous spadix.

Anthurium uleanum is closest to A. ernestii, differing in the presence of a waxy, dustlike bloom on the tepals giving the spadix a matte, pale appearance. A difference that can be used to determine fruiting collections is the slender, often curved, tapered spadix of the present species, rather than a more or less cylindroid, stubby one. Anthurium uleanum also has proportionately longer petioles, frequently up to half as long as the blade, and the blades tend to dry brown to dark brown. Anthurium ernestii typically has petioles much less than onethird as long as the blade and leaf blades, most often drying greenish with orangish or brownish primary lateral veins. Anthurium uleanum has cataphylls which tend to persist intact or semiintact for a long period before ultimately weathering to fibers. Often there are 2-3 more or less intact cataphylls on a plant. In contrast, the cataphylls of A. ernestii persist quite characteristically as an intact network of fine, very pale fibers, and frequently there is little evidence of intact cataphylls on dried specimens.

Another species which may be confused with A. uleanum due to having a similar waxy, grayish spadix is A. manuanum. See the discussion under that species for distinction from A. uleanum.

The new variety of *A. uleanum*, var. *nanay*ense, is a morphologically homogeneous taxon restricted to Loreto, Peru, mainly in the Iquitos region. See discussion under the variety for further details.

Synonymized here for the first time is A. tenuispadix. Its type (Ule 5597), collected at the same locality as that of A. uleanum, differs slightly from the latter in having leaf blades attenuate at the base rather than ending abruptly. Engler separated the two species in his key on presumed differences in the shape of the lateral tepals, but these differences in shape are probably due to their relative ages. Neither the difference in blade shape nor the tepal shape warrants separation of *A. tenuispadix*.

The type of Anthurium tessmannii (Tessmann 3351), considered here as a synonym, is also toward the larger end of the spectrum in terms of leaf blade size (ca. 65 cm long, 19 cm wide).

Some collections made in the northwestern part of the range of *A. uleanum* in the Province of Napo, Ecuador, differ from Peruvian material and collections from further south in Ecuador in having broader, larger leaf blades with frequently obtuse bases. *Brandbyge & Asanza 30425* and *Pinkley* 290 are examples. There is, however, an overall gradation to "typical" Peruvian material within Ecuador.

Several other collections deserve mention. The leaf blades of a collection from the Río Ampiyacu in Loreto, Peru (Plowman et al. 6541), are unusual in having only a few, very steeply ascending primary lateral veins (parallel to the margin for most of their length) and a geniculum noticeably shrunken to a narrower diameter than the attending midrib or petiole. The leaf blade, in color and venation, bears some resemblance to that of A. superbum subsp. brentberlinii. Harling & Andersson 17571, Mexia 6142a, and Wurdack 2109 are unusually large plants. The following measurements, contrasted with those of typical material, circumscribe the main differences: petioles 45 cm long (vs. up to 36 cm); leaf blade 85 cm long (vs. up to 65 cm) and up to 31 cm wide (vs. up to 24 cm); peduncle 43-51 cm long (vs. 14-38 cm). The spadix does not differ significantly from that found on those of other plants which are vegetatively more typical and have shorter peduncles.

BRAZIL. ACRE: Cruzeiro do Sul-Rio Branco, 44 km E of Cruzeiro do Sul, Fazenda da Dona Cabuca, 150 m, 7º38'S, 72º35'W, Croat 62334 (INPA, MO, NY); Rio Moa, Igarape Ipiranga-Aquidaba, Cruzeiro do Sul, Prance et al. 12049 (INPA, NY, U, US); Cruzeiro do Sul, 150 m, 7°37'S, 72°37'W, Croat & Rosas 62304 (CM, G, IBE, INPA, K, MBM, MO, NY, QCA, RSA, US); Mpo. Caramari Amazonas, Rio Juruá, N of Cruzeiro do Sul, Lago da Cigana (São Luis), S of Porto Alvaro Nestrinho, 150 m, 7°37'S, 72°36'W, Croat 62498 (CAS, CM, GB, INPA, K, MO, RSA, SAR, TEX); Mpo. Cruzeiro do Sul, Cruzeiro do Sul-Rio Branco, INCRA headquarters and forest reserve, 160 m, 7°38'S, 72°35'W, Croat 62629 (INPA, MO). AMAZONAS: Rio Cunhua, basin of Rio Purus, Deni Indian village, 6°43'S, 66°47'W, Prance et al. 16534 (INPA, NY); Rio Javarí, N of Palmeiras airstrip, 5°08'S, 72°49'W, Lleras et al. P17101 (INPA); Rio Juruá Mirim ("Miry"), Ule 5597, 5731 (B, G, MG); Manaus-Porto

Velho, 8 km S of Rio Jutai, Prance et al. 22916 (NY, US). COLOMBIA. AMAZONAS: Río Loretoyacu, vic. Puerto Nariño, Zarucchi & Schultes 1069 (GH); 100 m, Schultes 8468 (GH). META: Río Guayabero, 235 m, Garcia-Barriga & Mejia 17071 (COL); 10 km from Caño Lozada, 350 m, Pinto et al. 222 (COL, P); VAUPES: Río Apaporis, Río Pacoa, 300 m, 0°20'N, 71°20'W, Schultes & Cabrera 15221 (COL); Río Pacoa-Río Kananari, 250 m, Schultes & Cabrera 13703 (COL, US); Soratama, above mouth of Río Kananari, 300 m, 0°5'N, 70°40'W, Schultes & Cabrera 15164 (US). ECUADOR. NAPO: Parque Nacional Yasuni, 200 m, 0°55'S, 76°11'W, Cerón & Hurtado 4015 (MO); Pozo petrolero Daimi 2, 200 m, 0°55'S, 76°11'W, Cerón & Hurtado 4177 (MO); Lago Agrio-Coca, 4.7 km N of Coca, Croat 50408 (MO); 15 km N of Coca, 450 m, 0°30'S, 76°56'W, Croat 50412 (AAU, F, GH, K, MO, WIS); San Pablo de Los Secoyas, W-SW of Shushufindi, 300 m, 0°15'S, 76°21'W, Brandbyge & Asanza 32894 (AAU, MO); Concepción, Hacienda Cotapino, 550 m, 0°48'S, 77°25'W, Harling et al. 7111 (GB); Coca-El Auca, SE of Francisco de Orellana, road to El Auca, 14.6 km past bridge over Río Napo, 450 m, 0°37'S, 76°40'W, Croat 50382 (M, MO, NY, QCA, RSA); Lago Agrio, 250 m, 0°6'N, 76°55'W, Brandbyge & Asanza 30425 (AAU, MO); Lago Agrio-Francisco de Orellana, 26 km N of Coca, 450 m, 0°29'S, 76°55'W, Croat 50422 (MO, QCA); Lago Agrio-Coca, along Cepe Ferry Rd., 8.8 km S of Rio Aguarico on road to Coca (San Francisco de Orellana), Croat 58519 (MO); Lago Agrio-Puerto El Carmen de Putomayo, 2.2 km SE of Guarumo, 240 m, Croat 58617 (MO, NY); Tena-Puyo, 61.5 km N of Puyo, 500 m, Croat 49661 (MO); Río Aguarico, 60 km downstream from San Pablo de Las Secoyas, 220 m, 0°18'S, 76°00'W, Holm-Nielsen et al. 21120 (AAU); 40 km downstream from San Pablo de Las Secoyas, 230 m, 0°16'S, 76°11'W, Holm-Nielsen et al. 21095, 21098, 21099 (AAU); Shushufindi, 244 m, Vickers 220, 254 (F); Dureno, Pinkley 134, 290 (ECON); 11.4 km W of Lago Agrio, 340 m, 0°8'N, 76°58'W, Macbryde & Dwyer 1405 (MO); E of Lago Agrio, road to Cepe Ferry Crossing, 450 m, 0°2'N, 76°50'W, Croat 50426 (MO); Río Cuyabeno, 10 km upstream from Río Aguas Negras, 220 m, 0°10'S, 75°58'W, Holm-Nielsen et al. 21171 (AAU); Laguna Grande vic., 265 m, Nielsen 76207 (AAU); Río Napo, Limoncocha, SEL 78-1155 (cultivated) (MO); Estación Biológica Jatún Sacha, 8 km E of Misahuallí, 450 m, 1°04'S, 77°36'W, Ceron & Hurtado 3666 (MO); Río Pucino, Lago Agrio, 250 m, Gentry 9826 (MO); Río Putumayo, Baeza-Puerto El Carmen de Putumayo, 2.1 km W of Guarumo, 43.7 km SE of Lago Agrio, 240 m, 0°07'N, 76°39'W, Croat 58593 (MO, QCA); Lago Agrio-Río San Miguel, 12.5 km N of Lago Agrio, 0º06'N, 76º50'W, Croat 50321 (MO); Río San Miguel, 21.2 km N of Lago Agrio, 470 m, 0°8'N, 76°50'W, Croat 50374 (MO); Yasuni Nacional Parque, 230 m, 0°52'S, 76°05'W, Cerón 3402 (MO); Río Yasuni, Lago Garza Cocha, 200 m, 1°05'S, 75°47'W, Lawesson et al. 43345 (AAU); Puerto Napo-Misahuallí, 3.8 km W of Misahualli, 370 m, 1°02'S, 77°42'W, Croat 58888 (MO); at junction of Río Tivacuno and Río Tiputini, 220 m, 0°45'S, 76°20'W, Coello 216 (MO, NY). PASTAZA: Rio Curaray, Curaray, 2 km W of the school, 250 m. 1°22'S, 76°58'W, Holm-Nielsen et al. 21892 (MO); Sucumbios, Reserva Faunistica Guyabeno, S of Laguna Garzacocha, 265 m, 0°01'S, 76°11'W, Balslev et al. 84679 (AAU); between Laguna Añangueno and Río Cuyabeno, 265 m, 0°01'S, 76°11'W, Balslev et al. 84882 (AAU);

Río Cuyabeno, Puerto Montúfar, 230 m, 0º06'S, 76º01'W, Holm-Nielsen et al. 21302 (AAU); Rio Namoyacu, 21 km E of Curaray, 200 m, Harling & Andersson 17569 (GB, MO), 17571 (GB); Río Tiguino, via Auca, 115 km S of Coca, Carretera Petro-Canada, 320 m, 1º15'S, 76°55'W, Hurtado 1298, 1345, 1548 (MO), Hurtado & Neill 1506, 1521, 1572, 1573 (MO), Zak & Rubio 4318B (MO); Valle de La Muerte, Curaray, 240 m, 1°25'S, 76°52'W, Holm-Nielsen et al. 22467 (AAU). PERU. AMAZONAS: Prov. Bagua, Río Marañon, Teniente Pinglo, above Pongo de Manseriche, 250-300 m, Wurdack 2109 (BH, US); Río Santiago, above Pongo de Manseriche, 200 m, Mexia 6142a (F, GH, K, UC). HUÁNUCO: Río Pachitea, Puerto Lira, 300 m, Killip & Smith 26833 (NY, US). LORETO: Iquitos, Amazonas Lodge, Ellenberg 8463 (MO); Río Corrientes, almost at Ecuadorian border, upriver from Tnte. Lopéz oil camp, 280-300 m, Gentry et al. 18971 (MO); Río Huallaga, Santa Rosa, below Yurimaguas, 135 m, Killip & Smith 28769, 28922 (NY, US); Yurimaguas-Balsapuerto, 135-150 m, Killip & Smith 28285 (NY, S); Río Samaria, Atún Cocha, Vásquez et al. 4346 (MO); Río Sucasari, tributary of Río Napo, 3º16'S, 72º54'W, Martin et al. 1747 (ECON, F); Prov. Loreto, San José de Parinari, 150 m, 4°32'S, 74°30'W, Vásquez & Jaramillo 3354 (MO); Río Corrientes, Valencia, Platanoyacu, ca. 3º10'S, 75º41'W, McDaniel & Marcos 11131 (MO); Rio Macusari, 220-300 m, 2°55'S, 76°15'W, Lewis et al. 11044 (MO); Prov. Maynas, Ecuador border, 1-5 km from Puerto Peru (military post, 8 km from mouth of Rio Gueppi, trib. of Río Putumayo) on trail to Río Napo, 200 m, Gentry et al. 22038 (F); Iquitos Region, Las Pebas, Río Ampiyacu, 3º10'S, 71º49'W, Plowman et al. 6541 (GH); Río Yaguasyacu, affluent of Río Ampiyacu, Brillo Nuevo, 2°40'S, 72°00'W, Plowman et al. 6884 (GH); Río Yavarí, Caserío Paumari, Revilla 2203 (MO); Prov. Requena, Río Ucavali, Cumaria, 225 m, Tessman 3351 (B). UCAYALI: Cerro Las Cachoeiras, Quebrada Sapallal, tributary of Q. Shesha, near Peru-Brazil border, 260 m, 8°2'S, 73°55'W, Gentry & Díaz 58467 (MO); vic. LSV base camp, Quebrada Shesha (trib. of Río Abajao), 65 km NE of Pucallpa, 250 m, 8°02'S, 73°55'W, Gentry & Díaz 58571 (B, K, MO, US); Prov. Coronel Portillo, Bosque Nacional A. V. Humboldt, 8°40'S, 74°45'W, Vásquez 3891 (MO).

b. Anthurium uleanum var. nanayense Croat, var. nov. TYPE: Peru. Loreto: Mishana, Río Nanay, 120 m, Solomon 3562 (holotype, MO 2627652). Figure 318.

Differt a var. typicum pro ratione habitu parvioro et seriebus spiralibus ferentibus floribus paucioribus.

Epiphytic, sometimes terrestrial; stem moderately slender, elongate, creeping, up to 100 cm long, 0.7-1.7 cm diam.; leaf scars obscured by root mass, 0.4-1 cm high, 0.9-1 cm wide; roots forming a dense, contiguous mass, ascending or descending, pale green to white, when dried grayish to brownish gray, smooth, fleshy, elongate, tapered, to 10 cm long, (1)2-3 mm diam.; cataphylls subcoriaceous, lanceolate, 3-6 cm long, acuminate at apex, drying brown to reddish brown, persisting semi-intact, eventually deciduous. Leaves spreading-pendent to spreading; petioles 5.5-19 cm long, 2-4 mm diam., subterete to C-shaped or sometimes D-shaped, with medial rib and margins raised adaxially, rounded abaxially; geniculum slightly thicker and paler than petiole, sometimes up to 3 cm remote from base of the blade, 0.3-1 cm long; sheath 2-2.5 cm long; blades thinly coriaceous, somewhat chartaceous, broadly elliptic to oblanceolate or broadly oblanceolate, shortly acuminate and apiculate at apex (the acumen downturned, 10-15 mm long), usually attenuate (sometimes acute to obtuse) at base, 22.5-43.5 cm long, 8-17.5 cm wide, broadest at or above the middle, the margins sometimes concave near the base; upper surface matte to semiglossy, medium green, lower surface matte, slightly paler; both surfaces drying matte to sometimes weakly glossy, grayish green to brown, with reddish brown major veins; midrib bluntly to acutely raised at base, becoming narrowly raised toward the apex above, prominently convex to higher than broad and slightly paler than surface below; primary lateral veins 5-7 per side, departing midrib at 40-55° angle, straight then arcuate to the margin, prominently convex above, occasionally raised in shallow valleys, more prominently raised below; interprimary veins if present almost as conspicuous as primary lateral veins, weakly sunken above, raised below; tertiary veins obscure above, flat to slightly raised and somewhat darker than surface below; reticulate veins slightly raised or obscure below when dried; collective vein arising from near the apex or absent, if present weakly sunken to flat above, raised below, drying less prominent than primary lateral veins and raised on both surfaces, ca. 3-7 mm from margin. Inflorescences much shorter than leaves; peduncle (4.8)16-28 cm long, drying 1-3 mm diam., $1.2-4.4 \times$ as long as petiole, \pm terete; spathe spreading, subcoriaceous, green, linear-lanceolate, 4-9.4 cm long, 0.6-1 cm wide, broadest near the base, acuminate at apex (the acumen apiculate, occasionally cuspidate), narrowly acute to almost decurrent at base, the margins meeting at 20° angle; stipe 6-17 mm long in front, 1-2 mm long in back; spadix purplish becoming gravish to white, sometimes reported as green, oblong, weakly tapered, curved, 5-7 cm long, 3-4(5) mm diam. near base, 2-3 mm diam. near apex; flowers ± rhombic, (1.4)1.9-2.1 mm long, (1.1)2.4-2.6 mm wide, the sides smoothly to jaggedly sigmoid; 3-4 flowers visible in principal spiral, 4-6 in alternate spiral; tepals densely and conspicuously papillate to granulose, sometimes appearing glaucous; lateral tepals (1-1.7 mm wide, the inner margins broadly convex, the outer margins 2–3-sided; pistils slightly raised; stigma broadly ellipsoid, 0.3–0.4 mm long; stamens grouped in a tight cluster above the pistil; anthers 0.4–0.5 mm long, 0.3–0.5 mm wide; thecae oblong, slightly or not at all divaricate. *Infructescence* with spathe persisting, withered; spadix 7.5–9.8 cm long, 0.6–0.9 cm diam.; berries violet, \pm ovoid, ca. 3.5 mm long, 3.4 mm diam.; seeds drying yellowish brown, ovoid, darker at the ends, ca. 1.7–2 mm long, 1.2–1.4 mm diam., 1 mm thick.

Anthurium uleanum var. nanayense is endemic to Peru in Loreto Department at 100 to 160 m, in the tropical moist forest transitional to tropical wet forest life zone. All collections have been made in the Iquitos region in Maynas Province, many from the Río Nanay (hence the name).

This variety is characterized by its relatively small size, rather elongate stem, broadly oblanceolate to almost obovate leaf blades drying brown and attenuate to narrowly acute at the base and slender, tapered spadix apparently starting as purplish and eventually becoming grayish white (appearing glaucous).

Variety nanayense is likely to be confused only with var. *uleanum*, which occurs in the same area and differs in having longer petioles, a longer spadix, more oblong leaf blades, and fewer flowers per spiral. Variety *nanayense* is smaller in overall size than var. *uleanum*, and the uniformity of herbarium specimens of the former is notable.

PERU. LORETO: 17 km SW of Iquitos, Croat 18460A (MO); Rio Nanay, Iquitos, 100 m, Plowman 2482 (F, GH); Mishana, 120 m, Solomon 3559, 3562 (MO); Río Tepiche, Santa Elena, McDaniel & Marcos 11261 (MO); Prov. Maynas, Iquitos Region, ca. 120 m, Revilla 3597 (MO), 3685 (AMAZ, F, MO); Río Momón, 130 m, Croat 19929 (MO), Díaz & Jaramillo 45 (MO), Rimachi 7711, 7856, 7858 (IBE, MO); Mishana, 130 m, 3°55'S, 73°35'W, Vásquez et al. 5319 (MO); Puerto Almendras, 122 m, 3°48'S, 73°25'W, Vásquez & Jaramillo 3159, 6100, 6618, 7590 (MO); Río Nanay, Casería Mishana, 30 km SW of Iquitos, Foster 4215, 4227, 4350, 4437 (F); Iquitos-Santa María de Nanay, Mishana, 140 m, 3°50'S, 73°30'W, Gentry & Emmons 38015 (MO), Gentry et al. 28905, 31632, 36437 (MO); Santa María de Nanay, 130 m, Schunke 2453 (F, NY); Río Putomayo, Ecuador border, Guarnición Militar de Gueppi, Díaz 356 (F); Río Yaguasyacu, affluent of Río Ampiyacu, Brillo Nuevo, 2°40'S, 72°00'W, Plowman et al. 6854 (GH); Prov. Maynas, Dtto. Iquitos, Iquitos Region, Puerto Almendras, 120 m, 3°48'S, 73°25'W, Croat 51207 (MO); Iquitos-Puerto Almendras, 15 km from Iquitos, 120 m, 3°47'S, 73°25'W, Croat 51190 (MO); Rio Nanay, Carretera de Picuruyacu, 160 m, Rimachi 5464 (IBE); Prov. Requena, Río Ucayali, 4°55'S 73°45'W, Gentry et al. 56361 (MO).

Anthurium upalaense Croat & R. A. Baker, Brenesia 16(Suppl. 1): 97. 1979. TYPE: Costa Rica. Alajuela: between Cañas (Guanacaste) and Upala, near Río Zapote, 1.8–2.7 km S of Rio Canalete, ca. 1,000 m, Croat 36342 (holotype, MO 2381219; isotypes, CR, F, K). Figures 321, 323, 324.

Epiphytic; stem less than 20 cm long, 1.5-3 cm diam.; leaf scars obscured by root mass and persistent cataphylls; roots moderately dense and numerous, brown to green, scurfy to pubescent, moderately thick and elongate, mostly 2-6 mm diam.; cataphylls lanceolate, coriaceous, acutely 1-ribbed throughout, 11-25 cm long, obtuse to acute to narrowly acuminate at apex, plain green to slightly tinged with red, drying brown, persisting intact, eventually deciduous. Leaves erect-spreading to spreading; petioles (6)10-47 cm long, 7-13 mm diam., subquadrangular, broadly sulcate with the margins sharply raised adaxially, 3-5ribbed abaxially, the surface pale-speckled; geniculum thicker and paler than petiole, sometimes reddish abaxially, 1-2 cm long; blades subcoriaceous to coriaceous, elliptic to narrowly oblongelliptic to oblong-lanceolate, obtuse to acute to gradually acuminate at apex (the acumen downturned and weakly apiculate), usually acute to narrowly acute (rarely obtuse) at base, (30)40-106 cm long, (4.5)8-34 cm wide, broadest at or near the middle, the margins prominently undulate; upper surface semiglossy, dark green, lower surface semiglossy to glossy, slightly paler; midrib flat to obscurely angular at base, becoming prominently and sharply raised toward the apex and paler than surface above, prominently higher than broad and 3-ribbed at base, becoming prominently and acutely raised toward the apex below; primary lateral veins 10-20 per side, departing midrib at 60-75° angle, almost straight to the collective vein, loopconnected in the upper half, prominently and convexly raised above and below, more so above, paler than surface; interprimary veins less prominent than primary lateral veins; tertiary veins weakly visible, paler than surface above, darker than surface below, flat above and below; reticulate veins partially visible above, darker than surface below, drying prominulous above and below; collective vein arising in the upper half or in the upper third of the blade, flat, when dried slightly raised on both surfaces, 3-5 mm from margin. Inflorescences erect to spreading or arching-pendent; peduncle (18)40-54 cm long, 4-10 mm diam., equaling to $1.4-2.4 \times$ as long as petiole, light green, weakly pale-speckled, sometimes tinged with purple at base,