times longer than broad, and is also somewhat intermediate with *P. ligulatum* var. *ovatum*.

A collection from the southern slopes of Panamá Province in the basin of the Río Madroño (*Croat & Zhu* 77041) is intermediate between *P. ligulatum* var. *heraclianum* and variety *ligulatum* in having sharply D-shaped petioles lacking undulate-winged margins.

A noteworthy collection from Antioquia Department in Colombia (*Fonnera et al.* 1957) perhaps also represents *P. ligulatum* var. *ligulatum*, but differs in having the primary lateral veins drying paler than the surface below rather than darker as is the general case.

**Additional specimens examined for *P. ligulatum* var. *ligulatum*.**

*Costa Rica. Alajuela.* 3 mi. N of San Miguel, 380 m, *Croat 35643* (MO); Cañas–Upala, 4 km NNE of Bijagua, ca. 400 m, *Croat 36262* (MO); near Río Zapote, 1.3–2.7 km S of Río Canalete, ca. 100 m, *Croat 36300* (MO); Naranjo–Agüas Zarcas, 8.5 km NE of Villa Quebrada, ca. 600 m, *Croat 46971* (MO).


*Nicaragua.* Chontales. Cerro Las Nubes, El Tamagás, Loma San Gregorio, ca. 2 km N of Santo Domingo, 600 m, *Grijalva & Ríos 3455* (MO).

*Matagalpa.* NW of Cerro Musín, 500–800 m, *Araguistain & Moreno 2570* (MO).

*Zelaya.* Colonía Kururia, <50 m, 14°4’N, 84°4’W, Pipoly 3974 (MO); plantel of Neptune Mining Company, NE Bonanza, 200–350 m, 14°01’N, 84°35’W, Stevens 13029 (MO); Río Iayas, between Quebrada El Toro, 200–200 m, *Vincelli 371* (MO); Rio Suciö, 2 km E of Bonanza, 140 m, *Neill 4011* (K, MO). *Panama.* Bocas del Toro. Station Milla 7.5 on Changuinola–Almirante Railroad, 100 m, *Croat 38098* (CM, COL, CR, F, MO, NY); Almirante–Ojo del Agua, 3–6 km W of Almirante, 30–200 m, *Croat 38212* (F, MO); vic. of Chiriquí Lagoon, *Wedel 1479* (F, GH, MO). *Canal Area.* along Río Indio de Gatún, near sea level, *Pettifer 2794* (US). *Chiriquí.* Cerro Colorado, along Continental Divide 20–28 mi. from San Félix, 1200–1500 m, *Croat 33306* (MO). *Coclé.* La Mesa, N of El Valle de Antón, 785 m, 8°37’N, 80°07’W, *Croat 67113* (MO, PA); 800 m, 25370 (MO, US); 880 m, 8°36’N, 80°07’W, *Croat & Zhu 76669* (MO, 76694 (CR, CM, NY, PA); Alto Calvario, 5.2 mi. above El Copé, 930 m, *Croat 49195* (BR, CM, DUKKE, F, GH, HNMM, MO, PA, TEX, WIS); 750–900 m, 44734 (MO); 2700 ft., *Syisma et al.* 4343 (MO); Quebrada Mollejón, ca. 5 mi. N of El Copé, 700 m, *Croat 75050* (MO); road to Coconstructo, 12 mi. from Llanos Grande, 200 m, 8°47’N, 80°28’W, *Charchill et al.* 40118 (F, MO). *Colón.* Santa Rita Ridge Road, ca. 22 km from Transisthmian Highway, 500 m, 9°25’N, 79°40’W, *Hamnell et al.* 14474 (I, MO); along trail to Río Indio, beginning 10.6 km from highway, 380 m, *Croat 34302* (MO, NY, PMA); 26 km from highway, 500 m, 9°26’N, 79°57’W, *Knapp et al.* 1373 (MO); Mile 6.5, 370 m, 9°21’15”N, 79°44’W, *Croat & Zhu* 76954 (B, CAS, COL, CR, F, K, MEXU, MO, NY, PMA, SCZ, US, VEN); Sabanitas–Portobelo, Río Piedras Lumber Road, 250 m, 9°22’30”N, 79°41’30”W, 250 m, *Croat 75164* (MO, PMA); 75711 (MO); Portobelo–Nombro de Dios, 4.1 mi. W of Nombre de Dios, 50 m, 9°35’N, 79°33’W, *Croat 67318* (AAU, CAS, CM, COL, CR, DUKKE, F, GH, HNMM, K, KYO, L, LE, MM, MO, NY, P, PMA, QCA, RSA, TEX, US, VDB); Portobelo–Nombro de Dios, vic. Río Indio, 50 m, *Croat 33603* (MO, PMA); above road 18 km past Sardinilla on road to Nombre de Dios, 150–300 km, 9°26’N, 79°40’W, *Croat & Zhu* 76237 (MO); vic. of Guásimo on Río Miquel de la Borda, *Knapp 9983* (MO, SCZ); Río Fáté, 10–100 m, *Pettifer 3867* (NY, US). *Panama.* El Llanó–Carit Road, 6.8 mi. from highway, 350 m, *Croat 49102* (MO); Cerro Jefe, 15.4 mi. from Panamanian Highway, ca. 1000 m, *Croat 49092* (MO); Serranía de Májé, high point of ridges S of Ipetí, 650–800 m, 8°45’N, 77°30’W, *Knapp et al.* 4490 (MO); El Valle de Madroño–La Saena, 2.5 mi. N of El Valle de Madroño, 180 m, 9°14’25”N, 79°05’W, *Croat & Zhu* 77041 (MO).

*San Blas.* El Llanó–Carit Road, 1–2 mi. N of Nusagandi on road to Cartí, 230–275 m, 9°25’N, 79°79’W, *Croat & Zhu* 76580 (MO). *Veraguas.* vic. of Sante Fe, past Escuela Agrícola Alto de Piedra, at Río Segundo Braza, 450 m, 8°33’N, 81°08’W, *Croat 66914* (US, CA); ca. 5–8 km beyond agricultural school, 730–770 m, *Croat 25962* (F, MO); Santa Fe–Calóvezora, 1.7 mi. past Alto Piedra School, 1.5 mi. beyond Quebrada Cosilla, 570 m, 8°33’N, 81°08’W, *Croat & Zhu* 76862 (MO); Río Concepción, *Lewis 2793* (MO, NY).

**Philodendron ligulatum** var. *heraclianum*.


Interdinia 1 cm longa, 1.1–2.5 cm diam.; cataphylla 15–20 cm longa, obusae 2-costata, decidua; petioli acute D-formatos. (8,5)20–28 cm longus, marginibus alatis; lamina (29,46–61 cm longa, (8,5)12–15 cm lata, oblongo-elliptica vel anguste oblancoelliptica–elliptica, obtusa basi, in
sicco nigrescens; inflorescentia 1; pedunculus (5)13–15 cm longus, 1 cm diam.; spathe 10–12 cm longa.

Internodes short, to 1 cm long, 1.1–2.5 cm diam., usually longer than broad, medium green, semiglossy, drying pale yellow-brown, conspicuously and irregularly ridged and cracked; roots moderately few, to 30 cm long, 4 mm diam., reddish brown, weakly glossy, finely scaly; cataphylls 15–20 cm long, bluntly 1–2-ribbed, sharply 2-ribbed near apex; petioles (8.5)20–28 cm long, sharply D-shaped, with adaxial margins winged (to 6 mm high); blades oblong-elliptic to narrowly oblanceolate-elliptic, obtuse to narrowly rounded at base, (29)46–61 cm long, (8.5)12–15 cm wide ((2.9)4.3–5.4 times longer than wide), (2–2.6(6.3) times longer than petiole), upper drying blackish, lower surface matte, heavily tinged or mottled violet-purple or maroon, drying dark brownish black; midrib narrowly rounded and paler than surface below with maroon spots on older veins; basal veins lacking; primary lateral veins 5–12 per side, departing midrib at a 40–50° angle to the margins, green with maroon spots on older plants. INFLORESCENCES 1 per axil; peduncle (5)13–15 cm long, 1 cm diam.; spathe pale green, 10–12 cm long, to 6.5 cm wide when flattened, tinged violet-purple on outer margin and at base outside and at base inside; spathe blade greenish inside; spathe tube pale green, glossy inside; spadix 9.5–12 cm long; pistillate portion 4.3 cm long in front, 3.6 cm long in back; ovules 2 per locule, contained within transparent matrix, style similar to style type C; style funnel shallow to moderately deep. INFRUCTESCENCE with berries oblong-elliptic, 3 mm long; seeds oblong, light yellow-brown, 1.4 mm long, 0.4 mm diam., narrowly ribbed longitudinally. JUVENILE blades with lower surface heavily tinged maroon.

Flowing in Philodendron ligulatum var. heraclioanum is poorly known. Pre-anthesis flowering, collections were seen from March and in July. The inflorescence on the July collection was nearly fully emerged so that it would certainly have opened in less than one month. Immature fruits were seen in October.

Philodendron ligulatum var. heraclioanum is endemic to Panama, known definitely only from the type locality at the base of Cerro Pirre in Darién Province from 50 to 200 m elevation in a Premontane wet forest life zone.

This variety is characterized by its bluntly two-ribbed cataphylls; sharply D-shaped, marginally winged petioles; and the oblong-elliptic to narrowly oblanceolate-elliptic, blackish drying blades heavi-ly tinged with maroon on the lower surface when young.

Philodendron ligulatum var. heraclioanum differs from both varieties ligulatum and ovatum in its sharply D-shaped petioles with undulate-winged margins; in having 2 ovules per locule without an obvious ovule sac (vs. 1 ovule per locule contained in an ovule sac for the other two varieties); and in the maroon coloration of the lower surface of the young blades. In contrast, the other two varieties have petioles that are typically terete or subterete, merely obtusely flattened adaxially.

Philodendron ligulatum var. heraclioanum may be confused with P. pseudauriculatum, but the latter differs in having the petioles unwinged and, at most, obtusely flattened adaxially. In addition, P. pseudauriculatum has never been reported to have the blades purplish on the lower surfaces.

A collection from San Blas in far eastern Panama is probably also this variety; it differs in having much longer internodes (to 10 cm long and drying ca. 5 mm diam.) and proportionately shorter petioles.

Philodendron ligulatum var. heraclioanum is named in honor of Panamanian collector Heracio Herrera, who was one of the first to collect the taxon.

Additional specimens examined. PANAMA. Darién: Cerro Pirre National Park, W side of Cerro Pirre, base camp, 50 m, 8°N, 77°48′W, Croat 68963 (MO); Parque Nacional Darién, Estación Rancho Frío, N base of Cerro Pirre, ca. 9 km S of El Real, Quebrada Perisenchio, 70–270 m, 8°01′N, 77°44′W, Hammel et al. 16145 (MO). San Blas: Quebrada Masargandi, Isla de Tubuala, 200–400 m, 8°54′N, 77°46′W, Herrera 1304 (CAS, CM, MO, PMA).

Philodendron ligulatum var. ovatum Croat, var. nov. TYPE: Panama. Veraguas: vicinity of Santa Fe, along road between Alto Piedra and Calóvèbora, 0.5 mi. N of Alto Piedra, on slopes of Cerro Tute, Parque Nacional Cerro Tute, 800–1030 m, 15 July 1994, Croat & Zhu 76888 (holotype, MO—4619517; isotypes, B, COL, CR, F, K, NY, PMA, US, VEN). Figure 273.

Internodes 1–6(8) cm longa, 1–1.7(3) cm diam.; cataphylla 13–16 cm longa, incostata vel acute 2-costata; petiolius (10)15–19 cm longus, 7 mm diam.; lamina anguste ovata, subcordata basi, (14)18–26(39) cm longa, (3.5)12–16.5 cm lata, in sicco viridiflava supra, flaviflava infra; inflorescentia 1; pedunculus 12–16.5 cm longus, 7–10 mm diam.; spathe 11.5–18.5 cm longa, extus omnino viridalsa; tubo spatheae intus rubro basi.

Internodes 1–6(8) cm long, 1–1.7(3) cm diam., sometimes to 3 m or more long, sometimes covered with a thin layer of translucent white wax; cata-