Rediscovery of Rare Species of *Anthurium* (Araceae) from Peru

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**ABSTRACT**

In this paper five rare species of *Anthurium* are redescribed: *A. consimile* Schott, *A. corallinum* Poepp. et Endl., *A. gracilipedunculatum* Krause, *A. huanucense* Engler, and *A. peltatum* Poepp.

**RESUMEN**


**KEY WORDS**


**INTRODUCTION**

The Araceae of Peru are poorly known despite the publication of the family for the *Catalogue of the Flowering Plants and Gymnosperms of Peru* (Croat, 1993). This lack of knowledge is exemplified by low numbers of herbarium specimens that do not reflect the real importance of this family to the composition of the Peruvian flora. Croat (1999) proposes that the total number of Araceae for Peru will come close to 300 species or perhaps more.

Terrestrial and epipetric; stem terete, grayish brown; **internodes** short, 1.3–3.5 cm long, 2–3.5 cm diam.; **cataphylls** persisting intact at upper nodes, 4.4–11.2 cm long, 1–2-ribbed, triangular, dark brown to reddish brown, coriaceous. LEAVES erect to spreading; **petioles** 33–96 cm long, 0.5–1.2 cm diam., terete to obtusely and narrowly sulcate; medium green, sometimes tinged reddish toward base, semiglossy, unmarked; sheath 5.6 cm long; **midribs** moderately acute, bluntly acute to acute and slightly paler above, narrowly rounded to acute and paler below; **pri-
mary lateral veins (6-)8–10 per side, strongly recurvate-ascending, bluntly acute and concolorous on both surfaces, departing midrib at 40–45° angles, tertiary veins in part raised, reticulate veins not visible; basal veins 5–7 pairs, joining the 1st to 3rd basal rib; basal rib 3.1–3.3 cm long, straight to recurved, naked 1.7–1.9 cm; collective veins restricted to apex or above the middle, 1–5 mm from the margin.

INFLORESCENCE erect; peduncle 11.5–33 cm long, 0.4–0.6 cm diam., terete, much shorter than the petioles; spathe subcoriaceous, green, persisting on fruiting, erect to spreading, 7.4–17.3 cm long, 0.5–0.8 cm wide near to base, 0.3–0.8 cm wide near to apex, dark purplish; stipe green, 0.7 cm long in front, sessile to 0.2 cm long in back; flowers square, sides straight to slightly sigmoid, ca. 2 X 2 mm; 8 flowers visible in the principal spiral, 6 flowers visible in the alternate spiral; tepals smooth, unmarked (minutely papillate on magnification); lateral tepals 3-sided, 1.3 cm wide, inner margins convex; pistils ca. 2 mm long, oblong; stigmas rounded; stamens ca. 1.5 mm long; anthers 0.7 mm wide, emerging just above the margins of the tepals and remaining in a contiguous cluster, covering the stigmas; thecae slightly divaricate; pollen drying yellow-brown.

INFLORESCENCE erect; spadix 10.2–23.3 cm long, 1.2 cm wide; berries 0.5 cm, ovate with the upper part protruding.

It was necessary to lectotypify the species owing to the fact that Schott did not sufficiently define the collection in his original description. There are two existing collections in the Vienna herbarium (W). These may have been on loan during the Second World War because most of the rest of the Araceae collection was destroyed by war action but these specimens are extant. The lectotype specimen consists of only a leaf blade (without petiole) and an inflorescence with a piece of the peduncle, and the second consists of a smaller leaf and two inflorescences. The second specimen at W was also illustrated by Schott (Icones #626), but prepared in September 1829, whereas the type (Schott Icones #627) was prepared in July 1829.

The type specimen of A. consimile was initially identified as A. humboldtianum Kunth, a species actually known only from Colombia and Venezuela. The locality cited on the label is "Peruvia subandina. Sura terram—illegible—ad Cuchero", it corresponds to San Juan de Cochero, located in the Huánuco Department at the coordinates 9°30'S, 75°51'W. This area is near to other known collecting localities of Poeppig, such as Pompayacu.

Anthurium consimile is a member of section Calomystrum, and ranges from 700–1,000 m in elevation, occurring in the Tropical Lower Montane moist forest (TLM-mf) and Tropical Lower Montane wet forest (TLM-wf) life zones.

This species is endemic to Peru and has been collected in the Departments of Huánuco, Junín, Pasco and San Martín.

Additional specimens examined—PERU. Junín: Along rd. between San Ramón and Oxpampa, 6 km beyond turn off for rd. to Satipo, 10°53'30"S, 75°18'00"W, 700 m, 1 Apr. 1984, Croat 57736 (MO); Tarma, 10°58'23"S, 75°19'05"W, 750 m, 8 June 1998, Croat & Sizemore 81919 (MO, USM); Satipo, 11°10'30"S, 74°39'32"W, 1,000 m, 8 June 1998, Croat & Sizemore 82000 (MO, USM); La Merced, 700 m, 29 May–4 June 1929, Killip & Smith 24071 (NY, US).

Epiphytic; roots few per node, whitish to yellowish green, 2–4 mm wide, spreading to descending; stem terete, yellowish green, smooth; internodes short, 0.6–1 cm long, 1 cm diam., covered by the cataphylls; cataphylls 4.2–15.3 cm long, up to 2-ribbed, lanceolate, green to reddish brown or dark brown, persistent entire, coriaceous. LEAVES erect to spreading; petioles 15.2–48.3 cm long, 0.3–0.6 cm wide, terete, green; sheath 2.1–11 cm long; geniculum 1.9–3.4 cm long, greenish; blades subcoriaceous, 19.5–42.6 cm long, 8.9–19.3 cm wide, wider to the middle, ovate-cordate, acuminate at apex, deeply cordate to base, margins convex, posterior lobes oblong to rounded, 2.9–9.4 cm long; sinus triangular; glossy, dark green above, lower surface much paler; midrib raised and more conspicuous above; primary lateral veins moderately obscure both surfaces, 10–15 per side, straight, departing midrib at 40–60° angles; tertiary veins obscure beneath; basal veins 3–4 pairs, free to base, convex above; collective veins 2–3, arising from 2nd and 3rd (4th) basal vein, subparallel, the first 0–2 mm from the margin, the second 3–7 mm from the margin, the third 1.2–2.9 cm from the margin. INFLORESCENCE erect; peduncle 10.7–34.7 cm long, 0.5–0.6 cm wide, tere, greenish, 0.7–0.8 times longer than the petiole; spathe chartaceous, green, persistent, spreading sometimes recurved, 9.8–14.8 cm long, 1.5–2.8 cm wide, oblong, acuminate to apex, cordate to base; spadix tapered, 10.4–13.4 cm long, 0.6–0.8 cm wide next to base, 0.4–0.5 cm long next to apex, greenish or yellow to dull red or reddish orange; flowers 4-lobed, sides sigmoid, 2 × 2 mm, 6–7 flowers visible in the principal spiral, 5–6 flowers visible in the alternate spiral; tepals purple, matte, 3–6-sided, inner margin convex; pistils ca. 2 mm, emerging only after anthesis; filaments flattened, slightly convex; anthers rounding the stigmas at anthesis; thecae slightly divaricate; pollen whitish. INFRACTESCENCE not seen; immature infructescence orange (fide Vásquez 22563); mature berries said to be orange (fide Schunke 5034).

Anthurium corallinum is known from a photograph of the type, and from Schott drawing #618 (Nicolson, 1984). The type was destroyed during the Second World War.

This species appears to have variations in the color of the inflorescences: Schunke 5034 "strong greenish yellow", Foster et al. 10925 "dull red", Schunke 13707 "moderately yellowish pink", Foster 12177 "reddish orange", Lingán 669 "violet purple".

Anthurium corallinum ranges from 500–1,400 m in elevation and is reported from the Departments of Amazonas, Huánuco, Madre de Dios, Pasco, and San Martín. This epiphytic species occurs in the Tropical Lower Montane wet forest (TLM-wf) life zone and is a member of section Calomystrium.

Additional specimens examined—PERU. Amazonas: Poeppig 1723 (F, MO); Condorcanqui Province, El Cenepa Dis-
trict, Mamayaque community, Cerro Sak-ea-agai, 4°34'58"S, 78°14'01"W, 1,010 m, 14 Feb. 1997, Vásquez et al. 22563 (MO).

**Huánuco:** Leoncio Prado Province, Rupa Rupa District, 750–800 m, 5 July 1978, Plowman & Ramirez 7567 (F); 9°17'S, 76°05'W, 650 m, 2 June 1998, Croat & Szime­more 81612 (MO, USM); Jacintillo on left bank of Río Monzón, W of Tingo María, 750 m, 16 Apr. 1976, Plowman 5900B (GH).

**Madre de Dios:** Cerro de Pantiacolla, Río Palotoa, 10–15 km NNW of Shintuya, transect to ridgetop, 12°35'S, 71°18'W, 700–1,300 m, 16 Dec. 1985, Foster et al. 10925 (MO).

**Pasco:** Oxapampa Province, Villa Rica District, Sector Unión­Shimaki, Bosque de Protección San Matías-San Carlos, 10°43'58"S, 74°54'23"W, 1400 m, 4 July 2003, Lingán 669 (MO, HOXA, USM).

**San Martín:** Mariscal Cáceres Province, Campanilla District, 7°43'S, 76°40'W, 900–950 m, 21 Dec. 1981, Plowman et al. 11635 (F); Plowman et al. 11640 (F); Croat 579991A (MO);

**Hemiepiphytic to terrestrial, sometimes on rocky soil; few roots per node, 1 mm wide, light brown or deeply brown, smooth; internodes long and short alternating, long internodes 2–6.8 cm long, short internodes 1.2–4.1 cm long, 4–6 mm diam.; cata­phylls 1.5–6.8 cm long, sometimes 1­ribbed, triangular-lanceolate, reddish brown to grayish brown, persistent almost entire, papyraceous. LEAVES erect to spreading; petioles 3.9–15.5 cm long, 0.1–0.2 cm diam., terete, green; sheath 1–3.2 cm long, geniculum 3–16 mm long, light green to reddish; blades subcoriaceous, 7.2–22.2 cm long, 1.2–8.5 cm wide, wider in the lower half, lanceolate to ovate-oblong, acuminate to acute at apex, acumen 1.2–1.5 cm long, obtuse to subacute at base; matte or semiglossy in both surfaces, adaxially darker than the abaxial face; midrib adaxially convex, acute abaxially; primary lateral veins 5–9(12) per side, departing at 40–50° angles, straight to lightly arcuate-ascending, sunken above and raised below; basal veins frequently 2 per side; collective veins arising at the upper basal vein, 2–14 mm from the margins. INFLORESCENCE erect; peduncle 16.1–24.7 cm long, 0.1–0.3 cm wide, orange, 1.6–4.1 times longer than the peti­ole; spathe membranaceous, greenish turning purple at anthesis, persistent, spreading, 3.2–6.2 cm long, 0.7–1 cm wide, oblong-lanceolate, cordate at base; spadix cylindric, 2.8–7.5 cm long, 0.2–0.4 cm wide, dark purple to orangish red; stipe reddish or greenish to orange, sometimes purplish, 1.5–6.9 cm long; flowers square to 4-lobate with margins sigmoid to lightly straight, 3 × 3 mm; 3–4 flowers visible in the principal spiral, 5–7 flowers visible in the alternate spiral; tepals 4–5-sided, inner margins strongly convex; pistils ca. 1 mm long; stigmas oblong-rounded; stamens ca. 1.5 mm long (at anthesis); filaments flattened, lightly concave in the inner face; anthers exerted above the tepals at anthesis; thecae not divaricate. INFRUCTIONE erect; spadix 8.1 cm long, 0.9 cm diam., reddish orange; berries obovate with stigmas exerted, 5 mm long; seeds 2, oblong with irregular margins.


Hemiepiphytic to terrestrial, sometimes on rocky soil; few roots per node, 1 mm wide, light brown to grayish, spreading to descending; stem terete, greenish to red­dish brown or deeply brown, smooth; internodes long and short alternating, long internodes 2–6.8 cm long, short internodes 1.2–4.1 cm long, 4–6 mm diam.; cataphylls 1.5–6.8 cm long, sometimes 1­ribbed, triangular-lanceolate, reddish brown to grayish brown, persistent almost entire, papyraceous. LEAVES erect to spreading; petioles 3.9–15.5 cm long, 0.1–0.2 cm diam., terete, green; sheath 1–3.2 cm long, geniculum 3–16 mm long, light green to reddish; blades subcoriaceous, 7.2–22.2 cm long, 1.2–8.5 cm wide, wider in the lower half, lanceolate to ovate-oblong, acuminate to acute at apex, acumen 1.2–1.5 cm long, obtuse to subacute at base; matte or semiglossy in both surfaces, adaxially darker than the abaxial face; midrib adaxially convex, acute abaxially; primary lateral veins 5–9(12) per side, departing at 40–50° angles, straight to lightly arcuate-ascending, sunken above and raised below; basal veins frequently 2 per side; collective veins arising at the upper basal vein, 2–14 mm from the margins. INFLORESCENCE erect; peduncle 16.1–24.7 cm long, 0.1–0.3 cm wide, orange, 1.6–4.1 times longer than the peti­ole; spathe membranaceous, greenish turning purple at anthesis, persistent, spreading, 3.2–6.2 cm long, 0.7–1 cm wide, oblong-lanceolate, cordate at base; spadix cylindric, 2.8–7.5 cm long, 0.2–0.4 cm wide, dark purple to orangish red; stipe reddish or greenish to orange, sometimes purplish, 1.5–6.9 cm long; flowers square to 4-lobate with margins sigmoid to lightly straight, 3 × 3 mm; 3–4 flowers visible in the principal spiral, 5–7 flowers visible in the alternate spiral; tepals 4–5-sided, inner margins strongly convex; pistils ca. 1 mm long; stigmas oblong-rounded; stamens ca. 1.5 mm long (at anthesis); filaments flattened, lightly concave in the inner face; anthers exerted above the tepals at anthesis; thecae not divaricate. INFRUCTIONE erect; spadix 8.1 cm long, 0.9 cm diam., reddish orange; berries obovate with stigmas exerted, 5 mm long; seeds 2, oblong with irregular margins.
Anthurium huanucense which also has a long stipitate spadix. Anthurium gracilipedunculatum is a member of section Xialophyllum, series Caucanum, and is characterized by its reddish, largely stipitate spadix, brown internodes, and persistent cataphylls. Anthurium gracilipedunculatum is easily confused with A. pulchellum Engl., a species known only from Colombia, which also has a long stipitate spadix. However, A. pulchellum differs from A. gracilipedunculatum by its erect spathe, green to greenish yellow spadix, and smaller and elliptic leaves with primary lateral veins departing midrib at broader angles.

Additional specimens examined—PERU. Cajamarca: Cutervo Province, Parque Nacional Cutervo, 2,300-2,400 m, 11 Jan. 1990, Díaz et al. 3938 (MO); Jaén Province, 2,500 m, 9 Nov. 1999, Díaz & Campos 10925 (CAS, F, MO, NY, USM); 2,370 m, 6 Nov. 1999, Díaz & Campos 10868 (MO, QCNE, UB, USM, US); San Ignacio Province, 5°18’30”S, 78°44’01”W, 1,500-1,600 m, 19 July 1997, Campos & Nuñez 4194 (MO, NY). Pasco: Oxapampa Province, Oxapampa District, Parque Nacional Yanachaga-Chimilien, Refugio el Cedro, 10°32’S, 75°21’W, 2,440-2,500 m, 17 Aug. 2002, Monteagudo et al. 3670 (HOXA, HUT, MO); 2,430 m, 21 Nov. 2002, Monteagudo et al. 4356 (HOXA, HUT, MO); camino del refugio al Abra La Esperanza, 10°32’S, 75°21’W, 2,490-2,610 m, 22 Nov. 2002, Monteagudo et al. 4404 (HOXA, HUT, MO); camino al Abra Esperanza, 10°33’46”S, 75°22’93”W, 2,600 m, 13 Mar. 2003, Lindén et al. 341 (AMAZ, HOXA, HUT, MO, MOL, USM); Chacos, carretera a la Antena, 10°37’23”S, 75°20’16”W, 2,050 m, 21 Sep. 2003, Lindén et al. 688 (HOXA, MO, USM).

Anthurium huanucense Engler, Pflanzenr. IV. 23 B (Heft 23): 165. 1905. Type: PERU. Huánuco, Huamalies Province, near Monzón, 900-1,000 m, 27 July 1903, Weberbauer 3449 (holotype, B!). Figure 12.

Description based on dry material. Epiphyte; roots 0.1-0.5 cm wide, whitish to brown, spreading to descending; stem suberete, drying grayish, covered by the cataphylls; internodes short, 0.4-0.6 cm long, 0.6-1 cm diam.; cataphylls (1-)5.8-7.1 cm long, 2-ribbed, triangular lanceolate, acute at apex, reddish brown to grayish brown, membranous. LEAVES erect to spreading; petioles 4.1-10.4 cm long, 0.1-0.3 cm wide, U-shaped, narrowly sulcate, green; sheath 1.7-3.8 cm long; geniculum 0.4-0.9 cm long; blades subcoriaceous, 14.7-39.6 cm long, 2.6-7.9 cm wide, wider above the middle, elliptic-oblancoelectate to narrowly elliptic; acute at apex, acute to shortly attenuate at base; almost concolorous on both surfaces, lightly darker above, adaxially semiglossy, matte below; midrib narrowly convex above, convex below; primary lateral veins numerous, (9-)18-24 per side, distinct from the interprimary veins, straight to the collective veins, departing midrib at 35-40(-70°) angles; collective veins arising at base, 0.1-0.5 cm from the margins. INFLORESCENCE erect to spreading; peduncle 24.8-42.8 cm long, (0.1-)0.3-0.4 wide, green, terete, 4.8-6.9 times longer than the petioles; spathe subcoriaceous, green, persisting on fruit, reflexed, (1.6-)4.8-5.1 cm long, (0.4-)0.5-0.7 cm wide, linear-oblong, acute to apex, rounded to base; spadix cylindric, sessile, 1.1-10.1 cm long, 0.4-0.5 cm wide, green to reddish; flowers rhombic to 4-lobed, sides sigmoid, 3 × 3 mm; 2-3 flowers visible in the principal spiral, 3-5 flowers visible in the alternate spiral; tepals 3-sided, lateral tepals with inner margins straight to slightly convex; pistils ovate-elliptic; stamens 0.1 cm long; filaments flattened; anthers surrounding the stigmas at anthesis; thecae not divaricate. INFLORESCENCE erect; spadix 15.1 cm long, 0.5 cm wide, green; berries spherical, 3 × 3 mm; seeds 2, ovoid-elliptic, 0.2 × 0.1 cm.
The information about the color of inflorescences and infructescences are insufficient and more collections with adequate data of collection are necessary. Schunke’s voucher (Schunke 8590) has no data of spathe and spadix color, the information from his field book is lost. Engler (1905) describes tepal color as reddish, white punctate: “Tepala [. . .] rubescentia, albo-punctata”.

Engler also placed A. huanucense in section Urospadix, subsection Flavescen-tiviridia, but he makes mention that it is an intermediate between this section and section Leptanthurium: “Nota. Planta singularis, inter Leptanthurium atque species sectionis Urospadix habitu et characteribus intermedia”.

This species is known from Monzón and Tingo María (Huánuco and San Martín Departments) and Chanchamayo Valley (Junín Department), ranging from 900–1,000 m in elevation.


**Anthurium peltatum** Poeppig, Nov. Gen. Sp. Pl. 3: 83, t. 294. 1845. Type: PERU. Huanuco, vic. San Cristóbal in the direction of Cuchero, Poeppig’s illustration # 294 serves as the type, however, owing to the inaccuracy in the drawing an epitype is being created. Epitype: PERU. Huanuco: Leoncio Prado Province: Fondo Mariamilla, Distr. Emilio Valdizána, on old road to La Divisora, 1,380 m. Originally collected by T. Plowman (#5911). Cultivated at Selby Gardens (76-0072-005), Waimea Arboretum (77p665) and Lyon Arboretum; Epitype prepared from living plant at Selby Garden, 23 Aug., 1993, Croat 75855 (holoepitype, MO-4992465; isoeipitypes, B, K, SEL, US, USM). Figures 13–16.

Terrestrial; roots reddish brown to grayish, 1–2 per node, descending; stem 26–100 cm long, terete; internodes short, 0.3–0.7 cm long, up to 5 cm diam.; cata-phylls 4.1–16.3 cm long, bluntly 1-ribbed, lanceolate, acute to obtuse at apex, pale green to dark brown, deciduous or persisting semi-intact then deciduous, coriaceous. LEAVES erect; petioles 35.9–98.6 cm long, 0.4–0.8 cm wide, terete to obtusely sulcate adaxially, green, sometimes reddish; sheath approximately 5 cm long; geniculum 0.9–2.5 cm long; blades coriaceous to subcoriaceous, 27.5–66 cm long, (26–) 30.4–49.6 cm wide, wider immediately below the middle, ovate, generally peltate, shortly acuminate to apex, obtuse to deeply cordate to base, dark green, semiglossy above, much paler and weakly glossy below; midrib slightly paler and narrowly convex above the base, bluntly acute toward apex, narrowly convex and paler below; posterior lobes oblong, convergent, 6–21.5 cm long, generally fused; sinus absent to narrowly spathulate; primary lateral veins (4–)6–8 (–10) per side, convex in both surfaces, departing at 40–50° from the midrib, slightly recurved; basal veins 5–7 pairs, narrow raised and concolorous above, weakly raised in part below, the 1st, 2nd and sometimes 3rd free to base, the (3rd) 4th–6th (–7th) coalesced; posterior rib 0.5–5 cm long, straight, sometimes strongly retrorse; collective veins restricted to apical third, arising from the first basal veins or 2nd–3rd primary lateral veins, 1–9 mm to margin. INFLORESCENCE erect; peduncle (29.3–) 32–61.5 cm long, 0.3–1.2 cm diam., 0.6–0.9 times as long as the petiole; spathe subcoriaceous, green, persisting, spreading, 9.5–21.7 long, 1.0–3.9 cm wide; lanceolate to linear-lanceolate, acute at apex, acute to base; spadix tapered, 11–19.9 cm long, 0.3–1 cm near to base, (0.2–)0.4 cm wide near to apex, greenish purple to coppery brown; stipe 0.2–2.6 cm long in front, 0.2–0.5 cm in back; flowers 4-lobed, sigmoid sides, 2.6–2.8 × 2.5–2.7 mm, 5–9
flowers visible in the principal spiral, 4–11 flowers visible in the alternate spiral; tepals glossy, yellow to yellowish brown, the lateral 3-sided, the inner margins convex, the anterior and posterior 3–5-sided, the inner margins straight; pistils ca. 1.5 mm long; stigmas rounded; stamens 2 mm long, exerted at anthesis; filaments flattened; anthers surrounding the stigma at anthesis; thecae slightly divaricate. INFRUCTESCENCE erect; spadix greenish; berries spherical with protruding stigma.

Anthurium peltatum sites range from 400–1400 m in elevation. This endemic species is known from the Departments of Amazonas, Huánuco, San Martín and Ucayali.

The species was for many years known only from the original illustration by Poeppig (drawing #294), and was recollected in 1923 by J. F. Macbride, but that collection, determined incorrectly as A. lutescens Engl., remained uncorrected until recently. The original illustration by Poeppig does not depict the species well (the inflorescence looks more like Homalomena) and an epitype is required to better define the species. Therefore, Croat 75855 is cited as the epitype. This collection is reasonably widespread (B, K, SEL, US, USM), but more importantly it is represented by living material in several botanical gardens including Selby Botanical Garden, Sarasota, Florida, the Waimea Arboretum and Lyon Arboretum, both located on the island of Oahu in the Hawaiian Islands.

The species is placed in section Cardiolonchium, and is one of the few species of Anthurium with peltate leaves. It is characterized by its terrestrial habit and purplish spadix.

Additional specimens examined—PERU. 1,060 m, 19–25 July 1923, Macbride 5084 (F). Amazonas: Bagua Province, Imazita, Wawiko, 4°56’07”S, 78°12’11”W, 400 m, 21 Nov. 1996, Albán et al. 9281 (MO).

Huánuco: 1,000 m, 30 June 1977, Solomon 3349 (MO); Leoncio Prado Province, Emilio Valdizán, 1,380 m, 16 Apr. 1976, Plowman 5911 (GH, USM); Leoncio Prado Province, 1380 m, 5 Sep. 1993, Croat 75855 (MO); 1,180 m, 23 June 1992, Ingram 1443 (SEL). San Martín: Tocache Nuevo-Juanjú, ca. 96 km N de Tocache Nuevo, 1.4 km beyond bridge over Rio Pulcache, 7°41’S, 76°40’W, 600 m, 8 Apr. 1984, Croat 58027 (MO). Ucayali: Coro­nel Portillo Province, Cordillera Azul, 700 m, 5 June 1981, Young & Sullivan 727 (MO).

ACKNOWLEDGMENTS

This paper was supported by a grant from The Christensen Foundation. The authors would like to thank Emily Yates (MO) for editing the manuscript, and preparing figure plates.

LITERATURE CITED


