

Anthurium willifordii is endemic to Loreto Department in Peru, where it has been collected once in the vicinity of the Explorama Camp on the Río Sucusari, a tributary of the Río Napo, at less than 200 m. It was found here as an epiphyte in a tropical moist forest life zone.

This species is a very distinctive one, the chief characters being the short, stubby spadix on a short peduncle and the quilted leaf blades, which are matte above, velvety and frequently tinged red below. The petioles are of variable cross-sectional shape: quadrangular to trapezoidal or sometimes subterete; they are always sharply 3–5-ribbed abaxially.

No other species is likely to be confused with *A. willifordii*, and only *A. superbum* and *A. reflexinervium* share the character of quilted, velvety or red-tinged leaf blades.

The new species is named in honor of Jack Williford, of Brandon, Florida, who originally collected live plants along the Río Sucusari.

PERU. LORETO: Río Napo, Explorama Camp, on Río Sucusari, below 200 m, originally collected by Jack Williford, *Croat 61087* (B, K, MO, NY, USM).

Anthurium wurdackii Bunting, Acta Bot. Venez. 10: 279. 1975. TYPE: Venezuela. Amazonas: Cerro Yapacana, 3°45'N, 66°45'W, 825 m, *Steyermark & Bunting 103099* (holotype, VEN; isotypes, MO, MY, NY, US). Figure 341.

Description based on dried material only. Terrestrial or epilithic; stem short, stout, growing horizontally, 1.5–4 cm diam.; cataphylls thick, ca. 4–7 cm long, dark brown, persisting \pm intact or weathering into fine linear fibers. Leaves erect to spreading; petioles 22–55 cm long, 5–8 mm diam., subterete, somewhat flattened and narrowly sulcate with rounded margins adaxially, rounded abaxially; geniculum 1–1.5 cm long; blades thickly coriaceous, broadly ovate-elliptic to somewhat broadly lanceolate in larger blades, acute to obtuse at apex, shallowly cordate at base, 28–53 cm long, 10.5–26 cm wide, broadest at or just below the middle; sinus broadly and shallowly arcuate; upper surface glossy, dark green, lower surface; midrib flat at base; becoming convexly raised toward apex; basal veins 3–4 pairs, prominently arcuate-ascending, usually merging with the margin, at least the first vein extending to near or above the middle of the blade; primary lateral veins 3–4 per side, departing midrib at 40–60° angle, slightly arcuate, steeply

ascending, raised above and below; interprimary veins few, less conspicuous than primary lateral veins; tertiary veins sunken above, raised above and below; collective vein arising in the upper half of the blade or absent. Inflorescences longer than leaves; peduncle (44)55–81 cm long, ca. 4–7 mm diam., 1–2 \times as long as petiole; spathe erect-spreading at anthesis, becoming reflexed to recurved, subcoriaceous, green tinged with maroon at apex at anthesis, becoming purple, lanceolate, (6.5)8–14.5 cm long, 1.5–2.5 cm wide, decurrent for 1.5–2 cm at base; spadix maroon, stipitate to 7–13 mm, narrowly tapered, 6.5–18 cm long, 6–7 mm diam. near base, 3–4 mm diam. near apex; flowers rhombic, 2.7 mm long, 2.9 mm wide, the sides straight to weakly sigmoid; 8 flowers visible in principal spiral, 6 in alternate spiral. Infructescence with spathe persisting; spadix 7–21 cm long, 1.5–2 cm diam.; berries white, maroon at apex, ca. 8 mm diam.

Anthurium wurdackii is known only by two collections from Amazonas, Venezuela, on Cerro Yapacana at 825 m in premontane wet forest, and on Cerro Neblina at 780 m in lower montane moist forest.

This species is an atypical member of the section and can be recognized by its subterete petioles, coriaceous, broadly ovate-elliptic leaf blades that are shallowly cordate at the base and have three to four pairs of basal veins and steeply ascending, mostly free-ending primary lateral veins. Also characteristic are the long peduncle, maroon, sharply tapered spadix, and whitish berries that are maroon at the apex.

Anthurium wurdackii is not closely related to any other species in sect. *Pachyneurium*. In leaf texture, it is most similar to *A. bonplandii* subsp. *bonplandii* or subsp. *guayanum*, but those differ in lacking basal veins and having oblanceolate to elliptic leaf blades that are attenuate to obtuse at the base.

VENEZUELA. AMAZONAS: Cerro Yapacana, 825 m, *Steyermark & Bunting 103099* (MO, MY, NY, US, VEN); Dpt. Río Negro, Cerro Neblina, Camp IV, 15 km NNE of Pico Phelps, north branch of river in canyon, 780 m, 0°51'N, 65°57'W, *Liesner 16664* (B, MO).

Anthurium xanthoneurum Bunting, Phytologia 60(5): 298. 1986. TYPE: Venezuela. Amazonas: Dept. Río Negro, Cerro Aratitoyope, ca. 70 km SSW of Ocamo, 900 m, 2°10'N, 65°34'W, *Steyermark et al. 130054* (holotype, NY; isotypes, MO, VEN). Figure 342.

Description based on dried material only. Epilithic; stem short, ca. 2.5 cm diam. *Leaves* with petioles less than 10 cm long; geniculum thicker than petiole, 2.5 cm long; blades thickly coriaceous, oblanceolate-elliptic, obtuse at apex, obtuse to narrowly rounded at base, 30–55 cm long, 8.5–15 cm wide, broadest above the middle, the margins prominently revolute; upper surface semiglossy and weakly quilted, lower surface paler, matte and with conspicuous brown glandular punctations, yellow-green; midrib convexly raised above, more prominently so below; primary lateral veins 8–10 per side, departing midrib at 30–40° angle, weakly arcuate to the margin, convexly raised above in moderately deep grooves, conspicuously raised below; interprimary veins absent; tertiary veins prominulous, especially on the upper surface; collective vein absent. *Inflorescence* with peduncle 50 cm long, ca. 6 mm diam.; spathe unknown; spadix (post anthesis) brownish green, long-tapered, erect, 24 cm long, ca. 8 mm diam. near base, ca. 4 mm diam. near apex, broadest at the base.

Anthurium xanthoneurum is known only from the type collection from Cerro Aratitiope in Amazonas, Venezuela, at 990 m in a premontane rain-forest life zone.

This species is distinguished by its heavily coriaceous leaf blades with steeply ascending primary lateral veins, and its slender, long-tapered spadix.

Anthurium xanthoneurum is closely related to *A. bonplandii* and especially resembles subsp. *guayanum*. That taxon differs, however, in having mostly broader leaf blades with the primary lateral veins ascending at a wider angle.

VENEZUELA: AMAZONAS: Dpt. Río Negro. Cerro Aratitiope, 70 km SSW of Ocamo, streams feeding Río Manipitare, 990–1,670 m, 2°10'N, 65°34'W, *Steyermark et al.* 130054 (NY, VEN).

EXCLUDED SPECIES

Anthurium aduncum (Vell. Conc.) Schott, Prod. Aroid. 478. 1860. TYPE: Brazil. Illustration in Vellozo (1825). (Fl. Flum. Tab. 124 serves as the type.)

This species is based on an illustration (*Pothos aduncus*) in Vellozo's *Flora Fluminensis* (1825). Schott (1865) transferred it to *Anthurium* and included it in his section *Pachyneurium*. Engler (1905) placed the name among his "Species dubia." There are only two *Pachyneurium* species known from southern Brazil, *A. coriaceum* G. Don in Sweet and *A. solitarium* (Vell. Conc.) Schott,

and *A. aduncum* does not look remotely like either of them. The narrow blades with numerous veins indicate that it is most likely a member of sect. *Urospadix*. Its exact affinities may never be known, since that group has many similar species.

Anthurium agnatum Schott, Oesterr. Bot. Z. 8: 181. 1858. TYPE: Nicaragua. *Oersted s.n.* Type destroyed. (Field Museum photo 29807 serves as the type.)

This species, included in sect. *Pachyneurium* by both Schott (1860) and Engler (1905), was based on a sterile *Oersted* collection from Nicaragua. Although reported by Engler to be at Copenhagen, no such specimen exists there today. This may have been in error, because an *Oersted* collection bearing the name *Anthurium agnatum* was photographed (Field Museum 29807) at the Vienna herbarium (W), before the latter was destroyed during World War II. Schott also prepared an illustration of the same specimen (Schott illustration 468, Fiche 15:610). The photograph of the specimen and the Schott illustration are all that exist today.

The leaf blades of *Anthurium agnatum* are shaped like those of *A. spathiphyllum* N. E. Br., but have fewer than 10 primary lateral veins (vs. 20–30 for the latter). It may be an unusual specimen of *A. bradeanum* Croat & Grayum, a species similar to *A. spathiphyllum*, but that species, though possessing fewer primary lateral veins, has ovate-elliptic blades less than five times longer than broad. The blades of the *Oersted* collection are narrowly oblanceolate and over six times longer than broad. The unavailability of a specimen for examination of leaf texture, coloration, and venation makes it impossible to identify it with certainty, so it remains a nomen dubium.

Anthurium andicola Liebm., Vidensk. Meddel. Dansk Naturhist. Floren. Kiobenhavn 1: 22. 1849. TYPE: Mexico. Veracruz: Santa María Alpatlahua, 2,500 m, *Liebmann s.n.* (lectotype, K).

Designated as a *Pachyneurium* by Engler (1905), but rejected due to its lack of involute venation, this species is a member of sect. *Belolochium* (*A. andicola* Alliance); see Croat (1983).

Anthurium brownii Masters, Gard. Chron. 11. 744. 1876. TYPE: Colombia. Valle: vic. Buenaventura, *Wallis s.n.* (type, K).