

# A Reexamination of *Anthurium dressleri* Croat (Araceae) and a Description of a New Species of *Anthurium* Schott from Panamá

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## ABSTRACT

A new species, *Anthurium kunayalense* Croat & Vannini, is described and is compared with *A. dressleri* Croat. The latter species has long been confused with material not found at the type locality. The differences with *A. dressleri* Croat are itemized below and an updated description of *A. dressleri* Croat is provided to allow the reader to distinguish these two closely-related species better.

## KEY WORDS

Araceae, New species, *Anthurium kunayalense*, *Anthurium dressleri*, key differences, Panamá.

## INTRODUCTION

*Anthurium dressleri* Croat was described from material originally collected at about 200 m in the middle reaches of the Río Guanche in Colón Province, Panamá about 5 km above the bridge spanning the Río Guanche on the road from Colón to Portobelo. New material collected since 1978 has been ascribed to *A. dressleri* Croat without close examination and, although differences were perceived from specimen to specimen, it was assumed that this represented normal intraspecific variation. A careful study made by the junior author (Vannini, 2010) has concluded that there are two apparently allopatric, closely-relat-

ed but very distinct taxa occurring in Panamá; one from Colón, centering on from the type locality along the Río Guanche as well as cultivated individuals purportedly originating from the base of Cerro Bruja, and another taxon collected in the region of Nusagandi in the Comarca de Kuna Yala (San Blas).

The material from the second region is here recognized as a new species. The following key illustrates the differences in these two taxa.

## KEY TO *A. DRESSLERI* CROAT COMPLEX

- A. Leaf blades somewhat elongated, 14–45.5 cm long, 10–31.2 cm wide (averaging 32.5 × 22.9 cm), 1.1–1.6 times longer than broad; basal lobes always overlapping and turned up on their inner margins; upper surface blackish green and conspicuously velvety, emerging russet-red or garnet-colored; base of petiole with straight ribs; petioles 5-ribbed; primary lateral veins disposed mostly in the distal half of the blades, the intervening area scarcely or not at all quilted in the intervenal area, spathe white or whitish, sometimes tinged pink., spadix cream-colored; yellowish or yellow. . . . . *A. dressleri* Croat
- B. Leaf blades more nearly orbicular, 20–41 cm long, 15–34.7 cm wide, 1.0–1.55 times longer than wide;

basal lobes often barely overlapping or separated by a distinct sinus; upper surface matte or satiny, glittering light green, emerging metallic pink or tan; base of petiole and the geniculum conspicuously crisped; petiole 7–9-ribbed; primary lateral veins equally disposed along the midrib, the intervenal area weakly quilted; spathe green or greenish; spadix grayish-green or green . . . .

. . . **A. kunayalense** Croat & Vannini

***Anthurium kunayalense*** Croat & Vannini, **sp. nov.** Type: PANAMÁ. Panamá Province : Along the road from El Llano to Cartí, vic. of km 12.5, vic. of radio tower, steep forested ravine E of road, ca. 09°18'N, 78°57'W, originally collected by Jay Vannini, 28 Oct. 2007, vouchered Apr. 15, 2009, *Croat & Vannini 101491* (holotype, MO-6219588; isotypes, B, AGUAT, K, PMA, US). Figure 1.

*Differt a A. dressleri per lamina orbiculare; petiolus 7–9-costa; nervis primariis lateralalibus equans dispositus a costa; spathe viride vel virescens; spadix griseo-viridis vel viridis.*

Terrestrial; stem short, less than 20 cm long; **internodes** short, 2.5 cm diam.; cataphylls pale green drying dark brown to 4 cm long, acuminate at apex, persisting semi-intact on upper nodes and as fragments on older stems. LEAVES pendent from sub-erect petioles; **petioles** 9.7–30.5 cm long, 6–9 mm diam., uniformly medium green, prominently 7–9 ribbed, broadly and sharply flattened-sulcate adaxially, the margins moderately acute, prominently 3-ribbed abaxially, the ribs at the base of the petioles and on geniculum prominently undulate, sometimes also along the length of the petiole; **blades** narrowly elliptic-ovate and cordate-sagittate, abruptly acuminate at apex, deeply lobed at base, 20–41 cm long, 15–34.7 cm wide, 1–1.55 times longer than wide (averaging 23.7 × 30.6 cm), 1–2.1 times longer than petioles (averaging 1.6 times longer), glittering light green above (metallic pink or

tan when young), paler and matte below (light pink or buff when immature); petiolar plexus prominent, raised on adaxial surface; **basal veins** 4–7 pairs, the 1<sup>st</sup> and usually the 2<sup>nd</sup>, often the 3<sup>rd</sup> pair free to the base, the (2<sup>nd</sup>)4<sup>th</sup> to 5<sup>th</sup> and higher order usually coalesced (4–)6–10 mm at base, the posterior rib short or inconspicuous, scarcely naked along the margins 0–8(–15 mm); anterior lobe 15.7–30.5 cm long, broadly rounded along margins; **posterior lobes** 5.5–14 cm long, 4.9–13.5 cm wide, directed toward the base, overlapping and turned upward against each other along their inner margins; **sinus** 5.5–14 cm deep, narrow to closed with the lobes turned up against each other or up to 3.0 cm wide, **primary lateral veins** 2–7 pairs, disposed mostly along the midrib from the lower 1/3 to the apex, arising at 45–70° angle, the area between the primary lateral veins moderately quilted; **collective veins** arising from one of the primary lateral veins in the upper portion of the blade or more frequently from the 1<sup>st</sup> pair of basal veins; **lower surface** covered with a dense array of raised whitish punctations, especially near the basal veins. INFLORESCENCE erect; peduncle terete 8–38.5 cm long, 5–6 mm diam.; **spathe** 5.5–11 cm long, 1.1–2.7 cm wide, usually green or greenish, rarely white, lanceolate, erect-spreading to spreading, slightly curled downward toward the apex, narrowly to abruptly acuminate at apex; **spadix** 4.5–10.6 cm long, 5–7(–8) mm diam., green to gray-green (rarely pink), shortly cylindroid tapered, sessile or stipitate 3–6(–10) mm, narrowly rounded at apex; **flowers** 6–7 visible per spiral, 1.9–2.2 mm long, 2.0–2.2 mm wide, tepals with a few scattered pale sub-linear, pale cellular inclusions; lateral tepals 1–1.2 mm wide, outer margins 2-sided.

*Anthurium kunayalense* Croat & Vannini ranges from Panama to NW Colombia, known in Panama principally from the Comarca de Kuna Yala (formerly San Blas Province) at 300–500 m in an area of *Premontane wet forest* life zone. The specific name refers to its association with this region.

The species is characterized by its short stems, short internodes, persistent cata-

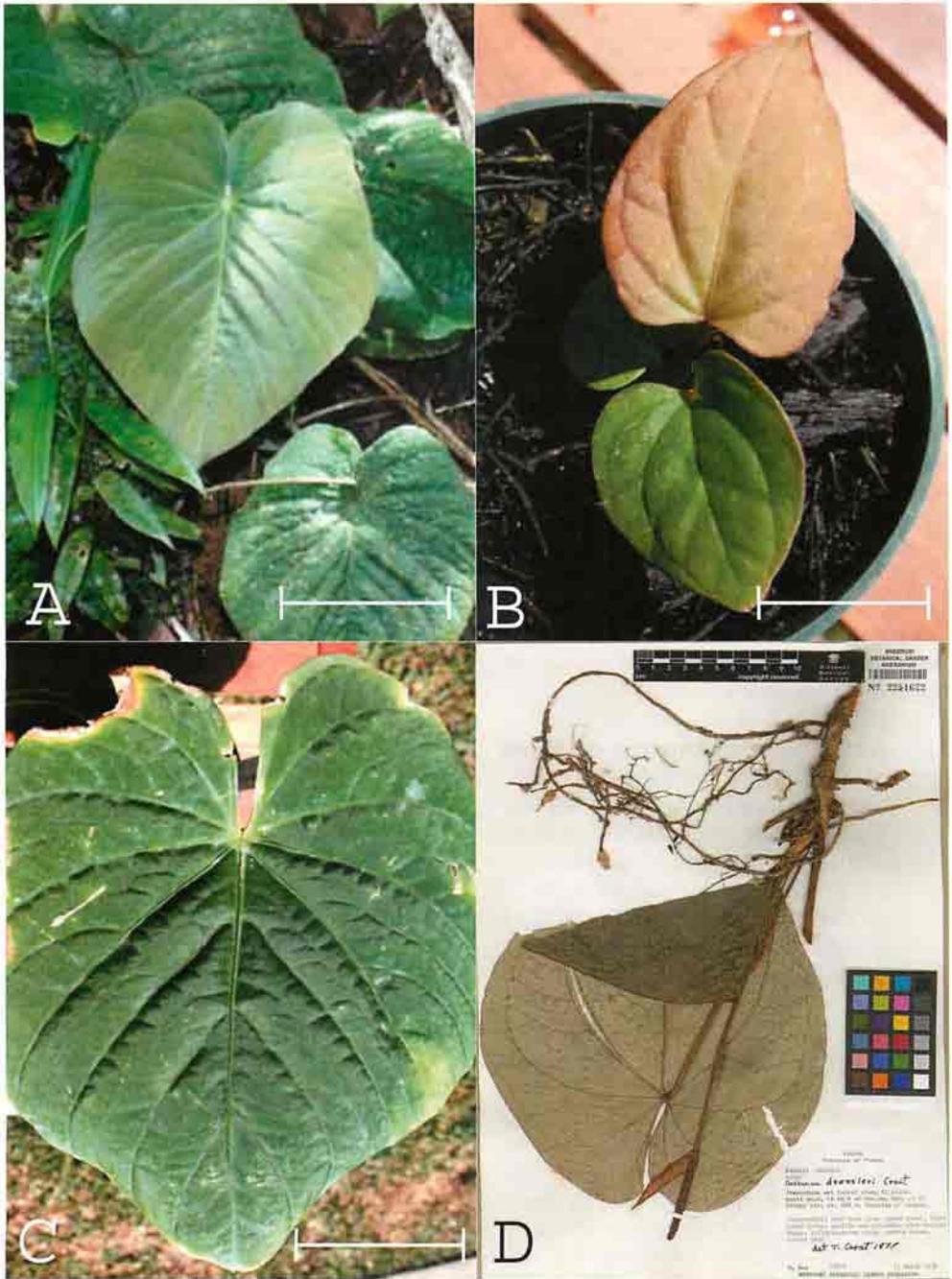


Fig. 1. A–D. *Antburium kunayalense* Croat. A–C. (Cultivated plant by Jay Vannini). A. Habit. Scale bar 16 cm. B. Seedlings. Scale bar 3.5 cm. C. Leaf blade, adaxial surface. Scale bar 10 cm. D. Herbarium specimen (*Nee 10492*).

phyll fibers on upper nodes, the 7–9-ribbed petioles, the medium green, matte subrounded blade with a prominent petiolar plexus, primary lateral veins arising from usually below the middle of the anterior lobe and with the intervening area somewhat quilted as well as by the erect inflorescence with the spathe and spadix usually both green.

*Anthurium kunayalense* Croat & Vannini is most closely related to *A. dressleri* Croat and was previously confused with that species. See the key above for differences with that species. In contrast to the case in some dried specimens in herbaria, living material of both immature and adult plants of these species is readily distinguished in the field and in cultivation (See Figs 1 & 2; Vannini, 2010).

Owing to the fact that *Anthurium dressleri* Croat has been so often confused with *A. kunayalense* Croat & Vannini, its species description is here updated and modified from its last use in the Araceae of Panamá (Croat, 1986).

**Paratypes:** PANAMÁ: **Comarca de Kuna Yala** 09°20'N, 78°58'W, 05 Jul 1994, *C. Galdames, E. Montenegrom, C. Chung 1346* (US); NW of El Llano-Cartí Road at Kuna Yala Nusigandi Field Station, trail to stream, 09°20'N, 78°59'W, 8 Apr 1985, *G. E. Schatz 1074* (MO); El Llano-Cartí Road. Slopes of Atlantic watershed, 09°21'N, 78°58'W, 1 Sep 1984, *G. de Nevers & E. Arias 3792* (MO); Trail to Cerro Óbu (Habu of maps) from Río Urgandi; (Río Sidra), 09°23'N, 78°48'W, 24 June 1986, *G. de Nevers et al. 8022* (MO); Trail along continental divide, 09°20'N, 78°56'W, 23 Jul 1986, *J.F. McDonag et al. 336* (MO); 8 mi E of Trans-Isthmian Highway on Santa Rita Ridge, 09°22'N, 78°57'W–09°25'N, 78°58'W, 31 Mar 1988, *S. A. Thompson 4676* (MO); (Comarca de Kunayala): Nusigandí, 10.1 mi N of Interamerican Hwy., then 1.9 mi N of Nusigandí. Virgin tall forest, 09°20'N, 78°59'W, 20 Jul 1994, *Croat & Zbu 76990* (MO); (Comarca de Kunayala): Nusigandí, El Llano-Cartí

Road, 1–2 mi N of Nusigandi on road to Cartí, 09°20'N 078°59'W, 2 Jul 1994, *Croat & Zbu 76578* (MO).

***Anthurium dressleri*** Croat, *Aroideana* 1: 54. 1978. Type: PANAMÁ. Colón: Río Guanche, upstream ca. 5 km above bridge along road to Portobelo, ca. 200 m, *Croat 37000* (MO-2395460, holotype; F, K, PMA, SCZ, SEL, US; isotypes, Live at MO). Figure 2.

Terrestrial or lithophytic; decumbent to short erect stem to ca. 70 cm long, 1–3.5 cm diam.; roots moderately few, brown, slender; cataphylls pale green, to 6 cm long, acuminate at apex, drying brown, persisting at upper nodes. LEAVES with petioles erect-spreading; blades held more or less perpendicular to petiole; **petioles** 4–5-ribbed, 9.8–33 cm long, 5–7 mm wide, narrowly to broadly sulcate adaxially (sometimes bluntly medially ribbed), suffused reddish or purplish violet especially on the adaxial surface sometimes purplish, the ribs at the apex and the base usually not undulated, sometimes those of the geniculum weakly undulated; **blades** narrowly ovate, acute to shortly acuminate at apex, deeply lobed at base, 14–45.5 cm long, 10–31.2 cm wide (averaging 32.5 × 22.9 cm), 1.1–1.6 times longer than broad, broadest near the middle, 0.8–2.2 times longer than petioles (averaging 1.5 times longer), russet or gamet red on young leaves; **anterior lobe** 11.3–34 cm long, the margins convex; **posterior lobes** 5–14 cm long, 4.1–13.7 cm wide, sometimes overlapping, often turned up along inner margins; **sinus** 5.5–11.5 cm deep, spatulate to closed, acute at apex; **upper surface** matte, dark green, velvety; **lower surface** matte, much paler, lacking whitish raised punctations; **midrib** raised above, acutely raised below; **basal veins** (2–)3–4(–8) pairs, free to base, raised above and below; petiolar plexus not conspicuous or prominently raised; **primary lateral veins** 2–4(–6) per side, departing midrib at 40–70° angle, raised above and below; interprimary veins flat, darker than surface; **collective veins** arising from the first basal vein, 4–9 mm from the margin.

INFLORESCENCE erect, shorter than the leaves; **peduncle** terete or with several sharp ribs, suffused reddish or purplish violet, 9–31 cm long; **spathe** moderately thin, white or greenish white, occasionally with pink tinges, narrowly ovate to lanceolate, 2.7–7.5 cm long, 0.8–2.5 cm wide, broadest in the lower one-third, acuminate to caudate-acuminate at apex, obtuse to cordate at base, inserted at 35° angle on peduncle; **spadix** pale or bright yellow to yellowish green (B & K Yellow-green 9/2.5) or white, becoming green post-anthesis, 3.5–7.7 cm long, 6–7 mm diam. at base, 4–5 mm diam. at apex; **flowers** weakly 4-lobed, 2.5–3.2 mm long, 2.5–3 mm wide, the sides straight to jaggedly sigmoid, ca. 6 flowers in the principal spiral, 10 flowers in the alternate spiral; tepals glossy, weakly punctate, minutely papillate, lateral tepals 0.7–1.5 mm wide, the inner margin broadly convex; pistils green, semiglossy, weakly emergent; stigma ellipsoid, 0.4–0.5 mm long, brush-like with droplets for ca. 1 wk before stamens emerge, drying brown; lateral stamens emerging in a rapid sequence from the base, the alternate pairs emerging much later; anthers 0.4–0.5 mm long, ca. 0.8 mm wide, held above the edge of tepals, not completely emergent from beneath tepals; thecae not divaricate; pollen white. INFRUCTESCENCE pendent, to 13 cm long, 1.7 cm diam.; berries irregularly dispersed, obovoid, dark violet-purple in apical one-third, white to greenish below, 6–8 mm long, 5 mm diam., round to mammilliform at apex; seeds 2, 4–5 mm long, ca. 3 mm wide, obovoid, white (turning green in age) one end oblique, enveloped in a semi-translucent appendage.

*Anthurium dressleri* Croat is known from Panamá and perhaps Colombia in *Tropical wet forest* and *Premontane rain forest* life zones from 100 to 500 m.

The species is a member of sect. *Cardi-olochium* characterized by its terrestrial or lithophytic habit, short internodes, persistent cataphylls on recent growth, short, prominently 4–5-winged petioles, its narrowly elliptic-ovate and cordate-sagittate, prominently dark velvety leaf blades with the primary lateral veins restricted to the

distal half of the blade as well as by the white, erect-spreading spathe and its usually cream to yellow, shortly tapered spadix.

Two collections from Colombia cited by Croat (1978) were not available for reinvestigation, but one collection from Colombia that was available from Chocó Department (*Galeano 4181*) has a blade 1.3 times longer than wide with the primary lateral veins arising from about the middle of the blade as in *A. kunayalense* Croat & Vannini and has a green spathe, but has a yellow spadix more commonly associated with *A. dressleri* Croat.

### MATERIAL EXAMINED

PANAMA. **Canal Area:** Pipeline Road, 09°10'20"N 079°45'20"W, 10 Jul 1979, *T. M. Antonio 1300* (MO); **Colón:** Trail from headwaters of Río Boquerón back to fork with Río Escandaloso, area route of abandoned railroad, 09°26'30"N, 79°32'30"W –09°27'15"N 79°32'30"W, 21 Jul 1978, *B. Hammel 4001* (MO); Portobelo region, Río Escandaloso near the abandoned manganese mine, 09°26'40"N, 79°32'57"W, 26 Apr 1978, *B. Hammel 2664* (MO); Río Guanche, about 2 mi upstream from the bridge. Lowland wet forest, 09°30'30"N, 79°40'00"W, 25 Mar 1975, *H. Kennedy & S. Mori 3463* (MO); Road from Colón to Portobelo; 24.6 km E of Transisthmian Highway, 09°26'30"N, 79°45'00"W, 17 Jun 1977, *J. P. Folsom 3737* (MO); Along Río Guanche, 09°30'N, 79°40'W –09°31'N, 79°41'W, 13 Jul 1974, *R. B. Foster 2808* (MO); At base of Cerro Bruja along Río Escandaloso, above Mina Boquerón 2 (manganese mine), 19 mi. from Transisthmian Highway on road to Salamanca. Tropical wet forest, 09°26'30"N 79°28'00"W, 18 Mar 1982, *S. Knapp & W.J. Kress 4285* (MO); Base of Cerro Bruja along the Río Escandaloso, above Mina Boquerón No. 2 (manganese mine), 19 mi E of Transisthmian Highway on road to Salamanca, 09°26'30"N, 79°28'00"W, 28 March 1982, *S. Knapp et al. 4456* (MO); Río

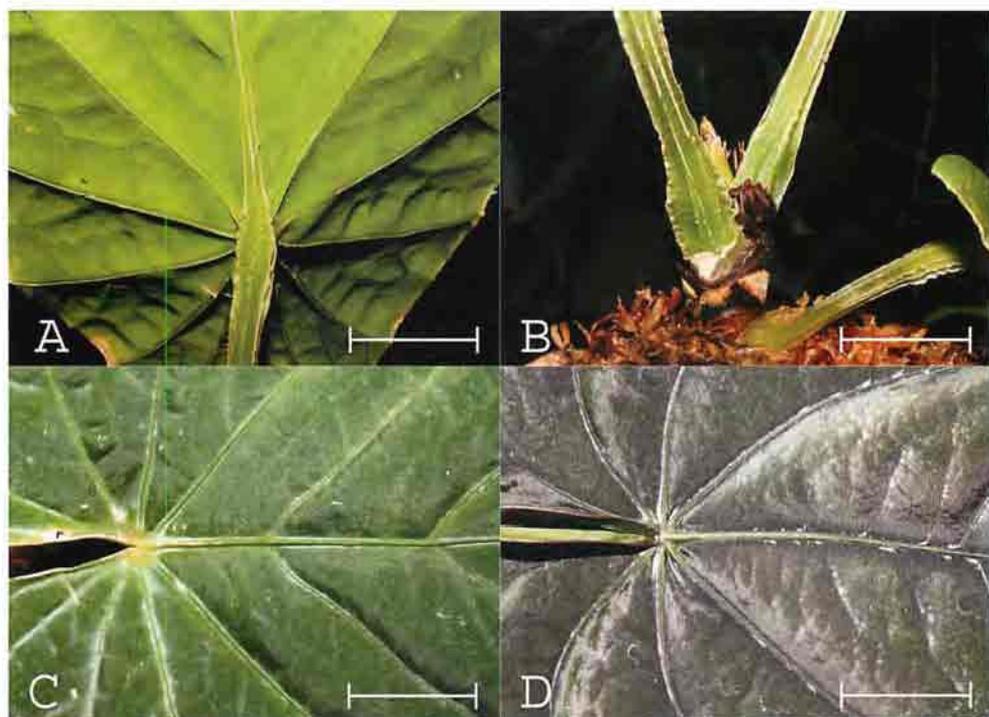


Fig. 2. A–C. *Anthurium kunayalense* Croat. (Cultivated plant by Jay Vannini). A. Leaf blade, abaxial surface, close-up. Scale bar 2.2 cm. B. Stem showing petiole bases with prominent ribs. Scale bar 1.8 cm. C. Leaf blade, adaxial surface, close-up showing broad petiolar plexus and primary lateral veins extending to below middle of blade. Scale bar 4.0 cm. D. *Anthurium dressleri* Croat. (Cultivated plant by Jay Vannini). D. Leaf blade, adaxial surface, close-up showing weakly developed petiolar plexus and poorly developed lateral veins. Scale bar 4.0 cm.

Guanché above bridge on Portobelo Road; ca. 3 to 5 km above bridge, 09°30'N, 79°37'W–09°31'N, 79°39'W, 8 Jul 1976, *Croat 37000* (MO); Along the Río Escandaloso near Mina Boquerón Número 2, 09°25'00"N, 79°33'00"W–09°26'30"N, 79°34'30"W, 14 Jul 1979, *T. M. Antonio 1310* (MO); Below Cerro Bruja along Río Escandaloso beyond Mino 2, 09°26'30"N, 79°27'30"W, 18 Mar 1982, *W.J. Kress & S. Knapp 82-1392* (MO).

**Panamá:** border of Panamá & Comarca de San Blas, Valle de Madroño; ca. 10 road miles north of La Margarita (by Chepo); in forest just South of and on continental divide along main trail to Cangandi., 09°19'N, 79°08'W, 21 Feb 1986, *B. Hammel & G. McPherson 14524* (MO); Llano-Carti Road, 12 km

from Inter-American Hwy; wet forest, 09°16'32"N 078°55'49"W, 30 Apr 1993, *D.R. Hodell et al. 1247* (MO); El Llano/Cartí road, 12 km N of PanAmerican Hwy. at El Llano; Vicinity of stream, 09°16'32"N, 78°55'49"W, 11 Mar 1974, *M. Nee 10492* (MO); El Llano-Cartí road, 8.4 mi beyond the highway, 09°16'55"N, 78°55'55"W, 5 Dec 1979, *Croat 49130A* (MO); El Llano-Cartí road, 8.4 mi beyond the highway, 09°16'55"N, 78°55'55"W, 5 Dec 1979, *Croat 49144* (MO).

**Cultivated plants:** Purportedly collected on Cerro Jefe, Panamá by Robert Dressler, 21 Jan 1977, *M.T. Madison 3741* (MO). Material collected by Jay Vannini along the middle and upper

Río Guanche, Colón, 22 May 2001; material collected along the Llano-Cartí road, Comarca de Kuna Yala 28 Oct 2007.

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