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Trans-Andean *Ancistrus* (Siluriformes: Loricariidae)

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Abstract

We review the trans-Andean species of *Ancistrus* from Panama, Colombia and Venezuela. Based on analyses of meristic, morphometric and pigmentation pattern data of preserved specimens, eight of sixteen species reported from this region are considered valid and two new species are described. Here we review *Ancistrus chagresi* Eigenmann & Eigenmann 1889 from both slopes of central Panama; *A. centrolepis* Regan 1913 from Pacific slopes of eastern Panama and western Colombia; *Ancistrus caucanus* Fowler 1943, from the Magdalena River drainage in northern Colombia; *Ancistrus martini* Schultz 1944, from the Lake Maracaibo Basin of Venezuela and Colombia. *Ancistrus galani* Pérez & Viloria 1994, from a cave in the Lake Maracaibo Basin of Venezuela is considered valid but was not examined. *Ancistrus tolima* new species is described from the upper Magdalena River drainage and *Ancistrus vericaucanus* new species is described from the upper Cauca River drainage. *Ancistrus gymnorhynchus* Kner 1854 and *A. falconensis* Taphorn, Armbruster & Rodriguez-O. 2010 were treated previously. One specimen of *A. clementinae* Rendahl 1937 from the Pacific coast of Ecuador was examined, it is considered a valid species. A key for identification and geographical ranges are provided.

Key words: Catfish, Panama, Colombia, Venezuela, key

Resumen

Se revisan las especies tras-andinas de *Ancistrus* de Panamá, Colombia y Venezuela. Basados en análisis de datos merísticos, morfométricos y patrones de coloración de especímenes conservados, ocho de dieciséis especies reportadas para esta región son consideradas válidas y se describen dos nuevas especies. Se revisaron *Ancistrus chagresi* Eigenmann & Eigenmann 1889 de las dos vertientes del centro de Panamá; *Ancistrus centrolepis* Regan 1913 de la vertiente Pacífico al oriente de Panamá y occidente de Colombia; *Ancistrus caucanus* Fowler 1943 de la cuenca del Magdalena en el norte de Colombia; *Ancistrus martini* Schultz 1944 de la cuenca del Lago de Maracaibo en Venezuela y Colombia. No fue examinado *Ancistrus galani* Pérez & Viloria 1994, descrita de una cueva en la cuenca del Lago de Maracaibo en Venezuela, pero la consideramos una especie válida. Se describen como nuevas especies *Ancistrus tolima* para la cuenca del Alto Magdalena y *Ancistrus vericaucanus* para la cuenca del Alto Cauca. *Ancistrus gymnorhynchus* Kner 1854 y *A. falconensis* Taphorn, Armbruster & Rodriguez-O. 2010 fueron tratadas previamente. Un ejemplar de *A. clementinae* Rendahl 1937 descrita de la costa pacífica del Ecuador fue examinado, y se considera una especie válida. Se proporciona una clave para la identificación taxonómica y rango geográfico de las especies tras-andinas.

Palabras claves: Cucha, Corroncho, Panamá, Colombia, Venezuela, clave

Introduction

Although over 100 species have at some time been assigned to the loricariid genus *Ancistrus* Kner 1854 (type species: *Hypostomus cirrhosus* Valenciennes 1836), today only 59 of those are recognized as valid; 16 are thought to be synonyms of other species of *Ancistrus* and the remainder were reassigned to other genera (Eschmeyer 2012).

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Ancistrus occur in both highland and lowland streams from Pacific coast drainages from just west of the Panama Canal to southern Ecuador, Caribbean drainages from just west of the Panama Canal to the Amazon, in Atlantic drainages from the Amazon to the Parnaiba, and in the río La Plata drainage. One species considered *incertae sedis* in Loricariidae by Reis et al. (2003) and *species inquirenda* in Loricariidae by Ferraris (2007), *Ancistrus salgadae* Fowler 1941, is described from the Salgade River in Ceará, Brazil; however, the pictures available on the All Catfish Species Inventory website are clearly of a juvenile *Hypostomus*, and the species should be recognized as *Hypostomus salgadae*.

The obvious tentacles sprouting from a soft naked snout found in mature males and most females make it easy to recognize these suckermouth armored catfishes and correctly assign them to the genus *Ancistrus*. Juveniles that lack tentacles might be confused with *Chaetostoma*, Tschudi 1846 which share the characteristic of a soft, fleshy snout, but without tentacles; however, species of *Chaetostoma* have five rows of plates on the caudal peduncle (vs. three) and most species have more branched dorsal-fin rays (usually eight or more vs. usually seven). As part of a review of the species of *Ancistrus* from northern South America we have examined available material from the northern trans-Andean region, which we define here to include the Caribbean and Pacific slopes of Panama, the Pacific drainages plus the Atrato and Magdalena River basins of Colombia, the Maracaibo Basin of Venezuela and Colombia, and the western Caribbean Province of Venezuela (Rodríguez-Olarte et al 2011). Other species from the eastern coastal drainages of Venezuela, the Orinoco Basin of Colombia and Venezuela, Trinidad and Guyana will be treated in forthcoming papers.

Materials and Methods

Synonymies are based on Fisch-Muller (2003), Eschmeyer (2012), and our own findings. Counts and measurements follow Armbruster (2003) with additions by Taphorn *et al* (2010). Plate-row names follow Schaefer (1997). Principal Components Analysis was performed on log-transformed measurements with tentacle length excluded (this character was found to not be informative because males' tentacles gradually develop as they grow, and females have very small or no tentacles) using JMP ver. 5.0.1a (SAS). The sex of specimens was determined by considering the relative width of the naked margin of the snout. Preadipose plates are the azygous plates located anterior of the adipose-fin spine (Armbruster, 2004) and were counted from the posterior dorsal-fin base to the adipose fin spine along the dorsal midline. Institutional abbreviations follow Sabaj-Pérez (2010). We abbreviate meters above sea level as masl. When available, values for holotype are indicated with an asterisk (*).

Results

Sixteen species of *Ancistrus* have been reported from the northern trans-Andean region, but we recognize only eight of those as valid (Table 1). Two species from coastal drainages of central Venezuela, *Ancistrus gymnorhynchus* Kner 1854 and *A. falconensis* Taphorn, Armbruster & Rodriguez-Olarte 2010, were examined previously (Taphorn *et al* 2010). In addition, one species (*A. clementinae* Rendahl 1937) we consider to be valid is known from the southern trans-Andean region, which we have not examined in detail. Here we provide selected synonymies, morphometric data, descriptions and the geographic distribution for the remaining four and describe two new species, one previously considered to be *Ancistrus caucanus* and another recently discovered in the upper Magdalena River drainage and notable for its loss of the adipose fin

TABLE 1. Chronological list of nominal trans-Andean species of *Ancistrus*.

Species	Authors	Described from	Comments
Ancistrus gymnorhynchus	Kner 1854	Coastal streams of central Venezuela	valid
Ancistrus karstenii	Lütken 1874	Coastal streams of central Venezuela	synonym of *Ancistrus gymnorhynchus*

..... continued on the next page

TABLE 1. (Continued)

Species	Authors	Described from	Comments
Ancistrus chagresi	Eigenmann & Eigenmann 1889	Caribbean and Pacific Panama	valid
Ancistrus rothschildi	Regan 1905	Coastal streams of central Venezuela	synonym of *Ancistrus gymnorhynchus*
Ancistrus centrolepis	Regan 1913	Pacific Colombia	valid
Ancistrus spinosus	Meek & Hildebrand 1916	Pacific Panama	synonym of *Ancistrus centrolepis*
Ancistrus melas	Eigenmann 1916	Pacific Colombia	synonym of *Ancistrus centrolepis*
Ancistrus clementinae	Rendahl 1937	Gulf of Guayaquil, Ecuador	valid, one specimen examined
Ancistrus caucanus	Fowler 1943	Magdalena River Basin Colombia	valid
Ancistrus brevifilis bodenhameri	Schultz 1944	Lake Maracaibo Basin	synonym of *Ancistrus martini*
Ancistrus triradiatus martini	Schultz 1944	Lake Maracaibo Basin	valid as *Ancistrus martini*
Ancistrus eustictus	Fowler 1945	Pacific Colombia	synonym of *Ancistrus centrolepis*
Ancistrus baudensis	Fowler 1945	Pacific Colombia	synonym of *Ancistrus centrolepis*
Lasiancistrus nationi	Fernández-Yépez 1972	Coastal streams of central Venezuela	synonym of *Ancistrus gymnorhynchus*
Ancistrus galani	Perez & Viloria, 1994	Lake Maracaibo Basin (cave)	valid, not examined
Ancistrus falconensis	Taphorn, Armbruster & Rodriguez-Olarte, 2010	Coastal streams of Falcon state, Venezuela	valid

Key to trans-Andean *Ancistrus* (for specimens preserved in alcohol)

1a. Eyes reduced; little to no pigment on body . . . . . ***Ancistrus galani*** (cave in Lake Maracaibo Basin)

1b. Eyes normal; body pigmented **2**

2a. Body without white spots or blotches (body entirely dark gray or tan with black spots or short vermiculations); caudal fin entirely dark or with sparse black spots that don't align to form vertical bands; lateral plates with enlarged odontodes along posterior margin that are directed posterolaterally and some of which overlap the successive plate . . . . . ***Ancistrus centrolepis*** (Pacific slopes of Panama and Colombia, and Atrato River)

2b. Body of preserved specimens with at least some white spots or blotches; caudal fin either with irregular white spots or with black spots that align to form vertical bands; lateral plates with normal-sized odontodes directed mostly posteriorly and none overlapping successive plate **3**

3a. Pectoral fin maximally reaching pelvic-fin spine when depressed ventral to pelvic fin; usually two or more preadipose plates; depressed dorsal fin not reaching posteriormost preadipose plate **4**

3b. Pectoral fin reaching past middle of base of pelvic fin when depressed ventral to pelvic fin; usually just one preadipose plate; depressed dorsal fin usually reaching to posteriormost preadipose plate **5**

4a. Adipose-fin spine completely adnate to dorsum with no adipose-fin membrane in adults; usually 4–5 preadipose plates (sometimes 3); dentary tooth cup length to SL ratio 5.7–9.1% . . . . . ***A. tolima*** n. sp. (upper Magdalena River drainage of Colombia)

4b. Adipose-fin spine close to dorsum, but adipose-fin membrane present; usually 2 preadipose plates (occasionally 1 or 3); dentary tooth cup length to SL ratio 4.7–5.3% . . . . . ***A. vericaucanus*** n. sp. (upper Cauca River drainage of Colombia)

5a. Caudal fin dark-colored (gray) with light spots, dark spots, if present, not usually aligning to form vertical bars . . . . . ***Ancistrus chagresi*** (Caribbean and Pacific slopes of Panama)

5b. Caudal fin light-colored with dark spots that often align to form vertical or oblique bars **6**

6a. Snout length/head length ratio 51.3–54.9%; head-eye length/snout length 72.3–91.9% in specimens greater than 60 mm SL; dark spots on fins relatively large forming what appears to be 4–5 irregular bands on the caudal fin (specimens are in a poor state of preservation) and 4–6 spots along the pectoral-fin spine . . . . . ***Ancistrus caucanus*** (Magdalena River drainage of Colombia)

6b. Snout length/head length ratio 55.5–65.3%; head-eye length/snout length 53.9–72.1% in specimens greater than 60 mm SL; dark spots on fins relatively small, forming 6–9 irregular bands on the caudal fin and 7–9 spots along the pectoral-fin spine . . . . . ***Ancistrus martini*** (Lake Maracaibo Basin of Venezuela and Colombia)

FIGURE 1. *Ancistrus caucanus* ANSP 70516, 53.0 mm SL, holotype, potentially from the upper Cauca River (see Remarks below). Photo by Kyle Luckenbill.

Ancistrus caucanus **Fowler 1943**
(Figs. 1 and 2)

Ancistrus caucanus, Fowler 1943: 253, figs. 40–43. Type locality: Sonsón, Cauca River basin, Colombia (see comments below). Holotype: ANSP 70516. Böhlke 1984:122 Type catalog Isbrücker 1980; Burgess 1989; Isbrücker 2001; Isbrücker 2002; Fisch-Muller 2003 (list); Maldonado-Ocampo *et al* 2005 (species account based on Fowler's original description); Ferraris 2007 (list).

Diagnosis. *Ancistrus caucanus* can be diagnosed from the other species in the Magdalena drainage (*A. tolima* n. sp. and *A. vericaucanus* n. sp.) by having: the pectoral fin tip extending to posterior half of pelvic-fin base when depressed ventral to pelvic fin (vs. maximally reaching to pelvic-fin spine); usually just one preadipose plate (vs. usually two to three in *A. vericaucanus* and 3–5 in *A. tolima*); the depressed dorsal fin usually reaching to the

preadipose plate just anterior to adipose-fin spine (vs. not reaching); by having a pectoral spine length to predorsal length ratio of 58.6–70.4 (vs. 47.5–58.8 in *A. vericaucanus*) and 46.9–57.3 in *A. tolima*; Fig. 3A); and from *A. vericaucanus* by having a dentary tooth cup length to SL ratio of 5.9–7.7% (vs. 4.7–5.3%; Fig. 3B). *Ancistrus caucanus* can further be separated from *A. chagresi* by having no well-defined white spots on the caudal fin (vs. well-defined white spots present); from *A. centrolepis* by lacking one to three rows of enlarged odontodes on the lateral plates and no odontodes on lateral plates longer than half the width of the supporting plate (vs. rows of odontodes present with some odontodes almost as long as the supporting plate is wide); from *A. galani* by having fully developed eyes and pigment (vs. eyes reduced and pigment absent or reduced); and from *A. martini* by having a snout length to head length ratio of 45.9–54.9% (vs. 55.5–65.3%), a head-eye length to snout length ratio of 72.9–88.0% (vs. 53.9–73.9; Fig. 3C), irregular dark spots on the fins relatively large, separated by lighter spaces, forming what appear a four to five irregular bands on the caudal fin (specimens are in a poor state of preservation; vs. six to nine irregular bands) and four to six spots along the pectoral-fin spine (vs. seven to nine spots).

Description. N=18. Morphometrics given in Table 2. Size range this study: 47–66 mm SL.

FIGURE 2. Live coloration of *Ancistrus caucanus*, CP-UCO 1443, collected and photographed by Juan Guillermo Ospino Pabon from a creek, tributary to the Nare River, middle Magdalena River drainage, Município de San Rafael, Antioquia, 6.402694º, -74.921833º, 694 masl.

A relatively small *Ancistrus*, body broadest anteriorly, greatest body width near opercles, then narrowing progressively to end of caudal peduncle. Head and body depressed, greatest body depth between level of pectoral-fin insertions and dorsal-fin origin. Caudal peduncle deep, robust, compressed posteriorly. Dorsal profile of head and body ascending steeply in convex arc from tip of snout tip to dorsal-fin origin, from there, descending in straight line or gently convex arc sloping gradually down to just posterior to tip of adipose-fin spine, then angled dorsally to caudal fin. Ventral profile flat to slightly convex from tip of snout to pelvic-fin insertions, abdomen flat to slightly concave to pelvic-fin insertions, from there, straight to slightly convex and sloping gently ventrally towards caudal fin.

Head wide, interorbital width slightly less than head depth, less than half of head length. Snout rounded with large broad naked margin in males, less wide in females and juveniles. Snout length about one-half head length. Eye moderate in size, interorbital area slightly convex. Oral disk ovate, wider than long. Lips covered with minute papillae, larger near mouth. Lower lip moderate in size, not reaching gill aperture, its border covered with very small papillae. Maxillary barbel very short, its length less than orbit diameter. Dentary tooth row straight, about same size as premaxillary tooth row. Teeth numerous (49–80 per jaw ramus), asymmetrically bifid, medial cusp much larger and spatulate, lateral cusp minute and pointed, usually not reaching more than half length of medial cusp, but equal in worn teeth. Hypertrophied cheek odontodes strongly evertible, 10–25, stout with tips hooked anteriorly, bases encased in thick fleshy sheaths. Exposed part of opercle roughly an elongate triangle with few

short stout odontodes. Head smooth, bones on back of head not carinate; supraoccipital with margins between surrounding bones and plates usually clearly visible. Lateral plates not carinate.

TABLE 2. Selected morphometrics of *Ancistrus caucanus* and *A. centrolepis*.

	A. caucanus (n=18)			*A. centrolepis* (n=67)		
	Mean	SD	Range	Mean	SD	Range
SL (mm)	51.3	6.9	40.7–65.5	115.6		53.7–187.2
%SL						
Predorsal Length	45.9	0.7	44.3–46.9	47.8	2.0	42.9–51.9
Head Length	36.8	2.4	33.8–44.9	38.0	2.3	33.6–49.9
Head-dorsal Length	10.6	1.4	8.2–12.9	10.5	1.5	7.0–16.1
Cleithral Width	32.4	0.8	31.1–34.1	33.4	1.3	30.7–36.3
Head-pectoral Length	27.4	1.7	23.6–30.1	28.9	1.9	23.9–34.5
Thorax Length	25.1	1.2	23.5–28.0	26.3	2.6	16.5–31.8
Pectoral-spine Length	29.1	2.0	24.4–32.5	39.2**	2.5	31.4–44.3
Abdominal Length	22.6	0.8	20.8–24.3	22.8	1.0	20.5–24.9
Pelvic-spine Length	24.5	1.8	21.1–27.4	27.0**	1.6	22.7–30.8
Postanal Length	31.9	1.2	30.2–35.2	30.6	1.4	26.2–33.5
Anal-fin spine Length	10.1*	1.3	7.4–12.0	12.3**	1.3	9.2–17.5
Dorsal-pectoral Distance	29.3	1.0	27.5–31.2	29.9	1.2	26.0–32.6
Dorsal spine Length	28.1*	1.5	26.3–30.3	31.5***	2.8	26.7–37.1
Dorsal-pelvic Distance	21.4	2.0	18.1–24.5	22.8	1.8	18.7–26.2
Dorsal-fin base Length	21.6	3.3	11.5–24.8	26.6	1.7	22.1–31.0
Dorsal-adipose Distance	19.2	1.8	14.1–21.9	17.2	1.6	11.3–21.7
Adipose-spine Length	8.5	1.3	5.6–10.8	7.5	0.9	5.7–9.8
Adipose-upper caudal Distance	14.5	1.7	9.4–17.7	12.2	1.6	9.4–20.7
Caudal peduncle Depth	10.5	2.7	9.0–21.2	11.6	0.8	9.6–13.3
Adipose-lower caudal Distance	20.8	0.8	19.1–22.1	19.1	0.9	17.6–21.1
Adipose-anal Distance	20.6	1.1	18.8–23.0	21.0	1.1	15.1–23.9
Dorsal-anal Distance	15.3	0.7	14.0–16.6	15.8	1.6	13.9–24.3
Pelvic-dorsal Distance	23.1	1.5	20.5–26.0	25.2	2.0	19.7–30.4
% Head Length						
Head-eye Length	42.0	2.6	35.1–46.8	44.9	2.1	37.4–48.7
Orbit Diameter	16.5	1.8	12.5–19.2	15.4	1.8	11.0–20.7
Snout Length	53.1	2.4	45.9–55.9	57.7	2.7	46.1–64.8
Internares Width	17.3	2.4	13.3–22.0	22.7	1.9	17.3–28.5
Interorbital Width	54.9	3.3	45.3–60.3	61.1	2.9	47.3–66.0
Head Depth	63.4	5.7	47.8–71.7	65.0**	2.9	51.1–72.6
Mouth Length	45.1	3.1	40.9–50.5	46.1	4.1	32.0–55.7
Mouth Width	53.3	4.8	46.4–62.0	49.1	4.1	37.6–58.1
Barbel Length	3.7	1.8	1.3–8.0	6.4	2.8	0.8–13.4
Dentary tooth cup Length	17.8	1.7	14.5–20.8	14.3**	1.7	10.6–18.5
Premaxillary tooth cup Length	17.4	1.6	15.2–21.0	15.1	1.7	10.2–18.5

*n=15, **n=66, ***n=60

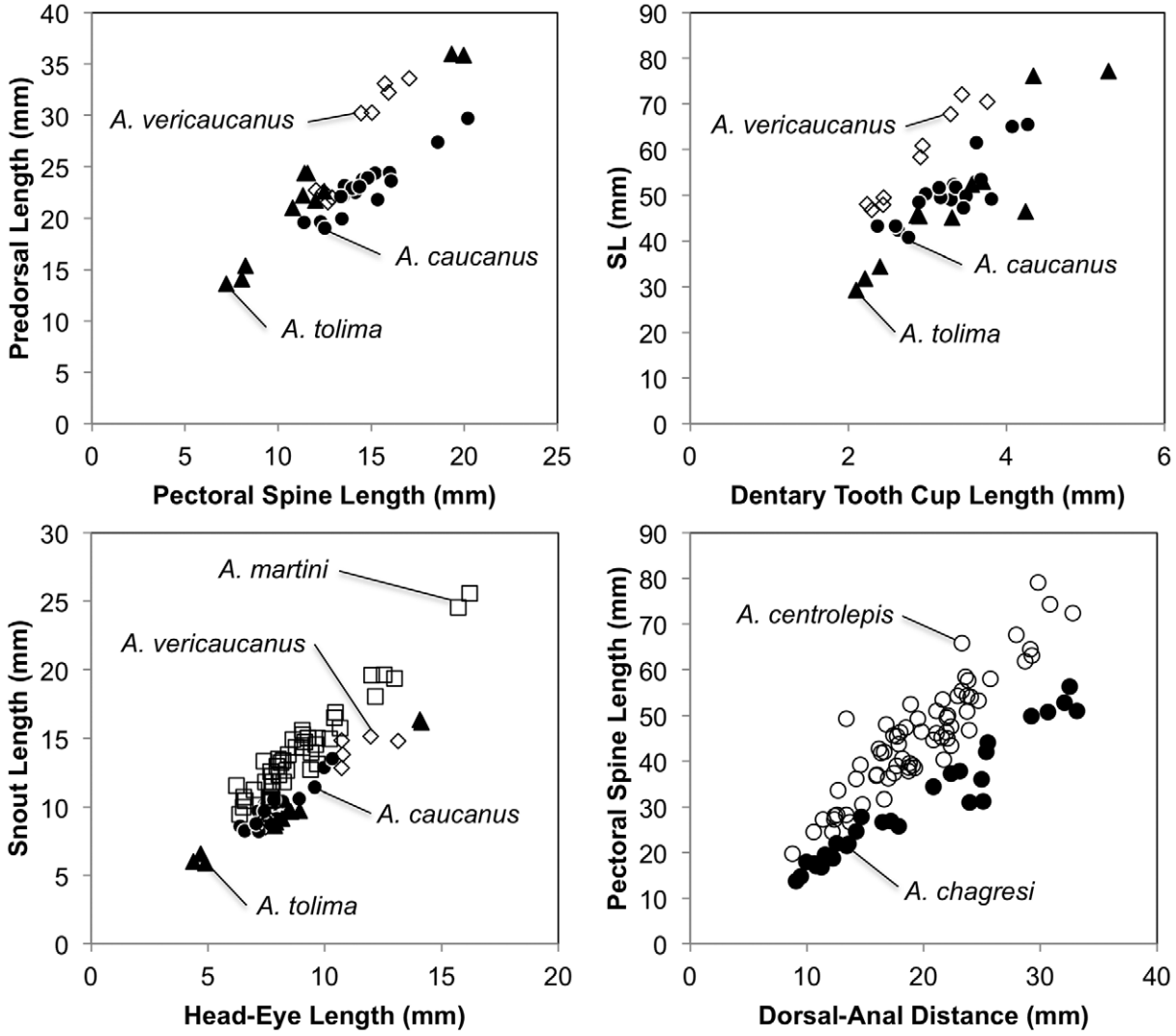

FIGURE 3. Diagnostic biplots for species of *Ancistrus*.

Ventral surface of head and abdomen naked, no exposed platelets anterior to anal-fin spine. Nuchal plate small and curved posterolaterally. No enlarged odontodes at edge of lateral plates. Five series of lateral plates anteriorly, three series on caudal peduncle, middorsal and mid-ventral plate series end on caudal peduncle beneath adipose fin. Last plate in median series slightly smaller than penultimate plate, base of caudal fin with vertical column of about four small platelets after main series, and about eight roughly triangular platelets covering bases of caudal-fin rays. Dorsal-fin origin situated anterior to vertical through pelvic-fin insertion. First dorsal-fin ray not elongate, just slightly longer than snout length; last dorsal-fin ray reaching first preadipose plate when depressed. Dorsal-fin base length about equal to dorsal-adipose distance. Adipose fin stout, angled up from body, membrane visible beneath spine. Pectoral spine short, stout, reaching past pelvic-fin insertions but only to anterior third of pelvic fins. Anal fin small but well developed; base of first anal-fin pterygiophore covered by skin, its origin below or posterior to vertical through base of last dorsal-fin ray. Pelvic fins reaching well past anal-fin origin, inserted posterior to vertical through first branched dorsal-fin ray. Caudal fin truncate, lower lobe slightly longer than upper.

Tiny odontodes present on body plates, largest on posterior margins of plates. All fin spines with small odontodes, more developed in pectoral-fin spine of males. All fin rays with tiny odontodes on rays.

Mid-dorsal plates 14(3), 15(6), 16(4), 17(1), 18(2), 19(2); median plates 22(6), 23(10), 24(1), 25(1); mid-ventral plates 16(2)17(8), 18(8); plates bordering dorsal-fin base 7(14), 8(4); plates between dorsal and adipose fins 3(2), 4(6), 5(3), 7(6), 8(1); preadipose plates 1(9), 2(5), 3(2),4(2). Fin-ray formulae (N=18): dorsal i,7; pectoral i,6; pelvic i,5; anal i,3(4) i,4 (14); caudal i,14,i. Caudal procurrent spines dorsal: 4(2), 5(16), ventral: 3(18).

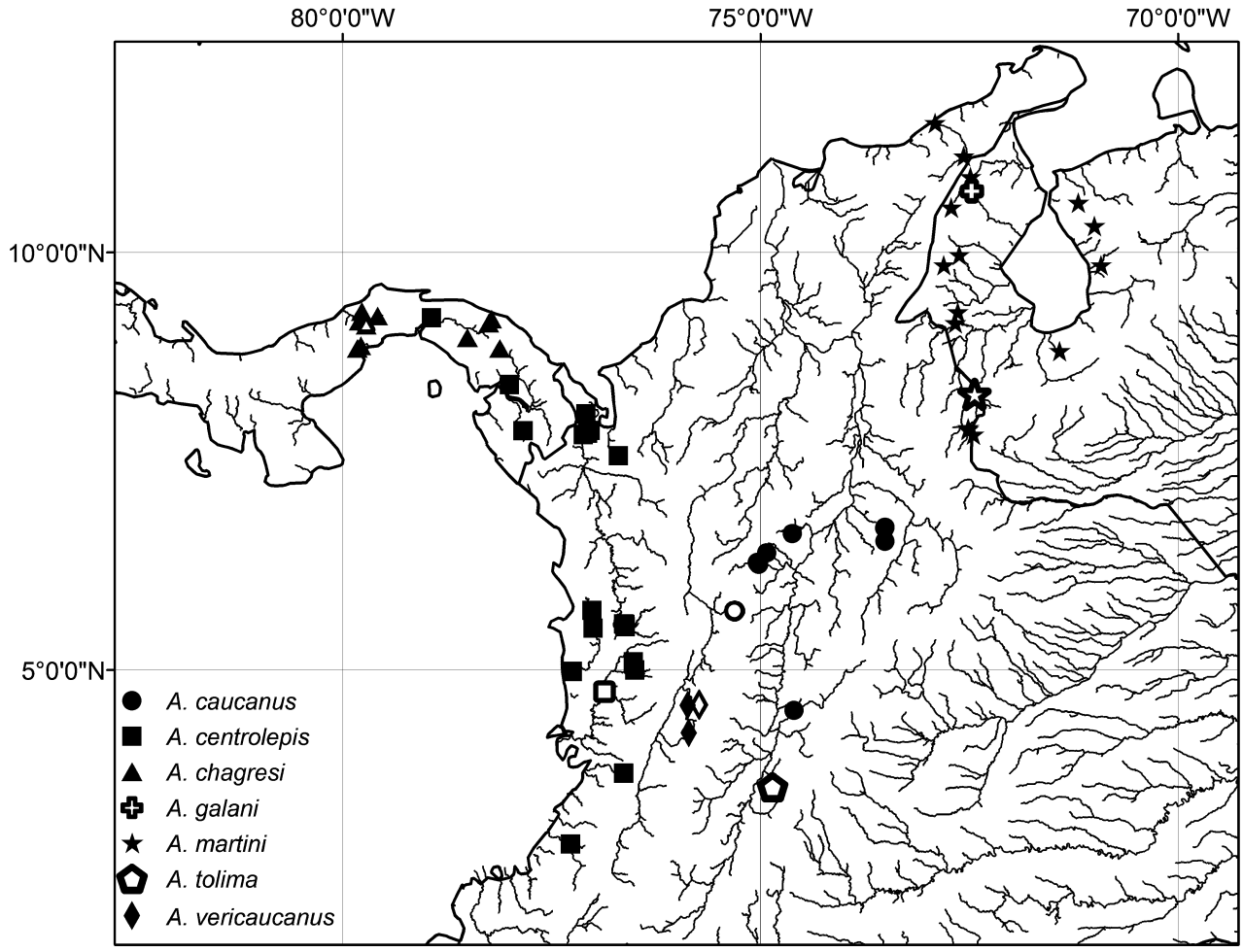

FIGURE 4. Distributions of trans-Andean *Ancistrus.* Symbols may represent more than one collection. Open symbols indicate type localities.

Color in alcohol. (Fig. 1) Base color of body brown or gray, with darker brown and lighter spots, especially noticeable dorsally on snout and top of head in freshly preserved material (spots fade with time). Ventrum brown or tan with traces of large, irregular light spots in freshly preserved specimens. All fins have dark spots separated by lighter areas present on spine and branched rays that align to form curved, transverse bands on the dorsal, caudal, pelvic and pectoral fins. Ventral surface of head and abdomen whitish tan.

Life Colors. (Fig. 2) Dorsum dark greenish brown with light green spots concentrated on soft nose and top of head. Body posterior to dorsal-fin base with patch of three-four light brown plates; upper margin of posterior caudal peduncle (adjacent to caudal fin) light brown. Tentacles and soft nose dark olive green with lighter green spots. Ventrum dark olive green with light (whitish or light green) irregular spots and vermiculations, abdomen and chest darker green than ventral portion of caudal peduncle behind anal-fin origin. Oral disk whitish. Fin membranes transparent, but spines and rays marked with three-four alternating dark olive green and whitish or light green sections. Caudal peduncle with light vertical bar adjacent to caudal fin. Caudal-fin spine and rays with alternating light and dark sections often aligned to form three-four vertical bars, distal margin of fin hyaline. Ridges of lateral body plates light, in contrast with dark olive green to blackish base color, forming pattern of oblique dark bars along sides.

Distribution. Magdalena River drainage, Colombia (Fig. 4).

Remarks. For many years, this species was known only from the holotype, but recent collecting reveals that it is still present in the Magdalena River drainage. Because the holotype and several other specimens collected with it grouped in our morphological analyses with specimens collected from the Magdalena River drainage but not with

any specimens collected from near the type locality in the adjacent Cauca River drainage, this suggests that the type locality is in error. The holotype was collected by Brother Niceforo Maria, reportedly from Sonsón, Colombia in the Cauca River basin; however, it is known that some of the localities of Niceforo Maria are in error. In loricariids, one of us (JWA, pers. obs.) has identified *Plecostomus argus* as being a member of the trans-Andean *Hemiancistrus annectens* group, but whose type locality is given as Villavicencio in the Meta drainage, and clearly this is not possible. The town of Sonsón is situated near the watershed divide between the upper Cauca and Magdalena river drainages, and it is feasible that collectors based there could have collected in tributaries of either river without venturing far from town. Our data indicate that the holotype and USNM specimens mentioned here were most likely collected in the Magdalena basin. Because this species is named for the Cauca River (which flows for most of its length independent of the Magdalena River), but apparently does not occur there, this now creates a very confusing situation.

Ancistrus centrolepis Regan 1913

(Figs. 5 and 6)

Images of syntype BMNH 1913.10.1.58 are available at the All Catfish Species Inventory website: http://acsi.acnatsci.org/base/image_list.html?mode=genus&genus=Ancistrus

Ancistrus centrolepis, Regan 1913:470. Type locality: Colombia: Chocó, San Juan River. Syntypes: BMNH 1910.7.11.122 (1), 1913.10.1.58 (1). Eigenmann 1922 lists them from the Chocó region, Río San Juan and relegates *A. melas* Eigenmann 1916 to the synonymy of *A. centrolepis*. He also stated that *A. spinosus* might also prove to be a synonym of *A. centrolepis*.

Ancistrus melas, Eigenmann 1916: 83. Type locality: Condoto [San Juan basin, Colombia]. Holotype: FMNH 58339 [ex CM 7335]; Isbrücker, 1980, 2001, 2002 (lists); Burgess 1989 (lists).

Ancistrus spinosus, Meek & Hildebrand, 1916:252. Type locality: Río Calobre, tributary of the Río Bayano, Panama. Holotype FMNH 8942, length 135 mm (but specimen currently identified as holotype is 171 mm SL). Eigenmann 1922:87 western slopes of southern Panama, said it may prove to be a synonym of *A. centrolepis* Regan. Breder 1927:109 described five specimens from Río Chico, Pacific coast of Panama, and comments on growth and food. Smith & Bermingham 2005:1840, list in table. Ibarra & Stewart 1987 list in type catalog; Ferraris 2007; Meek & Hildebrand 1916; Isbrücker 1980; Burgess 1989; Isbrücker, 2001; Isbrücker, 2002; Fisch-Muller 2003; holotype said to be doubtful; Ferraris 2007 (lists).

Pristiancistrus eustictus, Fowler 1945: 121, fig. 32. Type locality: Alto Río Baudó, Pacific slope at 914 masl, Colombia. Holotype: ANSP 71710. Isbrücker, 1980,2001, 2002 (list); Burgess 1989 (list); Fisch-Muller 2003 (list); Ferraris 2007 (list).

Ancistrus baudensis, Fowler 1945: 122, fig. 34. Type locality: Alto Río Baudó, Pacific slope at 914 masl feet elevation, Colombia. Holotype: (unique) ANSP 71709. Isbrücker, 1980, 2001, 2002 (list); Burgess 1989 (list).

Diagnosis. *Ancistrus centrolepis* can be diagnosed from all other trans-Andean *Ancistrus* by the presence of one to three rows of greatly enlarged odontodes (some nearly equal to the width of the supporting plate) on the lateral plates (vs. odontodes enlarged only along the posterior margin of the plate, and never greater than half the width of the plates); and by having the body either entirely dark or lighter with dark spots (vs. white spots). *Ancistrus centrolepis* is further distinguished from the potentially sympatric *A. chagresi* by the pectoral-spine length/dorsal-adipose distance: 1.90–3.68 vs. 1.24–1.90 (Fig. 2D); from *A. galani* by having fully developed eyes and pigment (vs. eyes reduced and pigment absent or reduced); from *A. tolima* and *A. vericaucanus* by usually having one preadipose plate (vs. 2 or more); and from *A. tolima* by having a well-developed, stout adipose-fin spine at a 45° to the dorsum (vs. adnate).

Description. N = 64. Size range this study: 54–187 mm SL. Morphometric data in Table 2. Body anteriorly broad, robust, greatest body width between opercles and pectoral-fin origins, then narrowing progressively to end of caudal peduncle robust. Head and body somewhat depressed, greatest body depth between level of pectoral-fin insertions and dorsal-fin origin. Caudal peduncle deep, robust, compressed posteriorly. Dorsal profile of head and body convex from tip of snout tip to dorsal-fin origin, from there, gently concave and sloping gradually down to just posterior to tip of adipose-fin spine, then angled dorsally ~45° to caudal fin. Ventral profile flat from tip of snout to pelvic-fin insertions, abdomen slightly concave to pelvic-fin insertions, from there, straight and sloping gently ventrally towards caudal fin.

FIGURE 5. *Ancistrus centrolepis* IMCN 1445 Río San Juan, Colombia (type locality).

Head broad, interorbital width about equal to depth of head. Snout broadly rounded with large broad naked margin in males, less wide in females and juveniles. Snout length greater than one-half head length. Eye relatively large, dorsal margin of orbit not elevated above dorsal profile of head, interorbital area flat to slightly convex. Oral disk ovate, slightly wider than long. Lips covered with minute papillae, larger near mouth. Lower lip moderate in size, not reaching gill aperture, its border covered with very small papillae. Maxillary barbel short, its length less than orbit diameter. Dentary tooth row slightly curved, about same size as premaxillary tooth row. Teeth numerous (50–120), asymmetrically bifid, medial cusp much larger and spatulate, lateral cusp minute and pointed, usually not reaching more than half length of medial cusp, but equal in worn teeth. Premaxillary tooth cup about as long as that of dentary. Hypertrophied cheek odontodes five to 19, usually eight to 13, stout with tips hooked anteriorly, strongly evertible, bases encased in thick fleshy sheaths. Exposed part of opercle roughly triangular with short stout odontodes. Head smooth, bones on back of head not carinate; supraoccipital with margins between surrounding bones and plates usually clearly visible. Lateral plates not carinate.

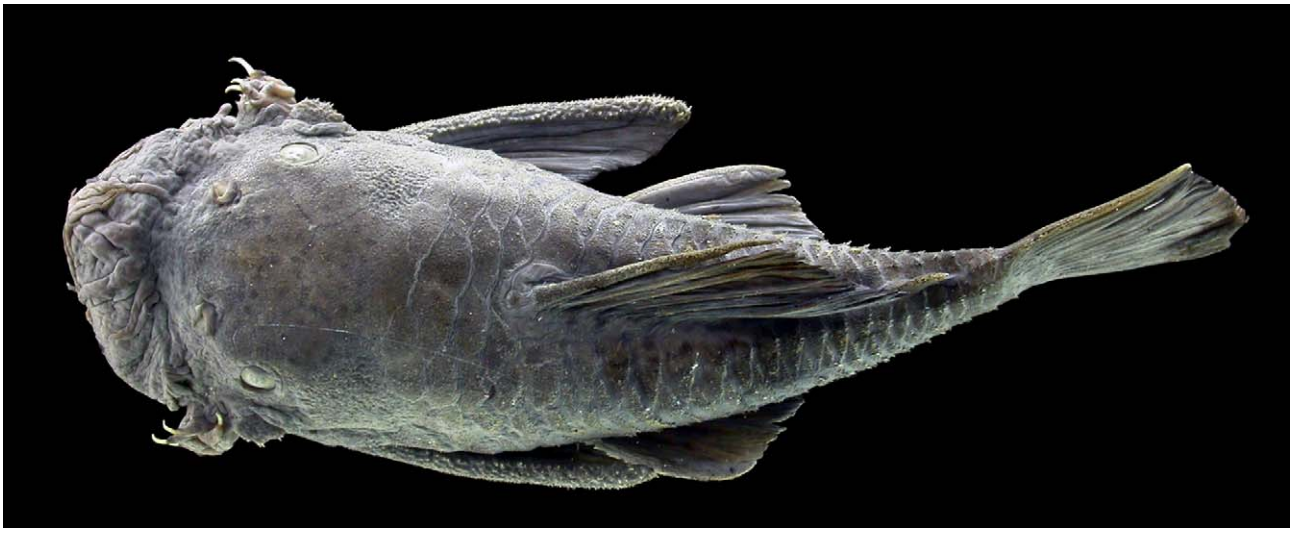

FIGURE 6. *Ancistrus centrolepis* CIUA 227 in dorsal view from the Atrato River, a Caribbean drainage of northern Colombia; shows dark color phase.

Ventral surface of head and abdomen naked, no exposed platelets anterior to anal-fin spine. Nuchal plate small and curved posterolaterally. Lateral plates with the middle two or three series of enlarged odontodes, ending in quite strong odontodes at the posterior edge of each plate. Five series of lateral plates anteriorly, three on caudal peduncle, mid-dorsal and mid-ventral plate series ending near vertical through adipose-fin origin. Last plate in median series slightly smaller than penultimate plate, base of caudal fin with vertical column of about four small platelets after main series, and about eight roughly triangular platelets covering bases of caudal-fin rays.

Dorsal-fin origin situated anterior to vertical through pelvic-fin insertion. Dorsal fin variable in shape and length, its first ray not quite as long as head length; last dorsal-fin ray sometimes reaching adipose fin when depressed, sometimes not, as Eigenmann (1922) noted. Dorsal-fin base length greater than dorsal-adipose distance. Adipose fin large and very well developed, with stout spine projecting at 45º angle from body, adnate adipose-fin membrane that adheres to penultimate plate anterior to first procurrent caudal-fin ray. Pectoral spine elongate, reaching well past pelvic-fin insertions to anterior third to middle of pelvic fins. Anal fin well developed but short; base of first anal-fin pterygiophore covered by skin, its origin posterior to vertical through base of penultimate to last ray of dorsal fin. Pelvic fins reaching well past anal-fin origin, inserted posterior to vertical through first branched dorsal-fin ray. Caudal fin obliquely truncate, lower rays longest.

Tiny odontodes present on body plates, largest on posterior margins of plates. All fin spines with small odontodes, more developed in pectoral-fin spine of males. All fin rays with tiny odontodes on rays.
Mid-dorsal plates 17(2), 18(3), 19(19), 20(19), 21(20), 22(1); median plates 22(2), 23(51), 24(10), 25(1); mid-ventral plates 17(2), 18(8), 19(23), 20(20), 21(10), 22(1); plates bordering dorsal-fin base 7(12), 8(51), 9(1); plates between dorsal and adipose fins 5(2), 6(51), 7(11); preadipose plates: 0(1), 1(61), 2(2). Fin-ray formulae: dorsal i,7; pectoral i,6; pelvic i,5; anal i,2(1) i,4 (63); caudal i,14,i. Caudal procurrent spines: dorsal: 3(1). 4(5), 5(58), ventral: 3(56), 4(6) 5(2).

Color in alcohol. Plain black, gray or dark brown, sometimes with darker spots. Degree of spotting or vermiculations varies among populations, and among individuals of same population. Specimens from Panama and Atrato River (Fig. 6) have very few dark spots and those from Baudó River in Pacific Colombia most heavily spotted (Fig. 5). Spots on fins more conspicuous than those on body in many specimens. Spots on the dorsal fin often consist of oblique dashes on membranes. See 'Remarks'.

Distribution. Pacific drainages of southeast Panama (Bayano and Tuira river drainages) and Colombia (Chocó Region San Juan, Dagua, and Baudó rivers), and the Atrato River basin, which empties into the Caribbean Sea in northwest Colombia (Fig. 4).

Remarks. Besides differences observed among specimens from different drainages, age, method and state of preservation also contribute to variability observed in pigmentation patterns that led to several species being described. For example, although Eigenmann (1916) described *A. melas* as uniformly blackish, the holotype today

has faint dark spots on the abdomen. Fowler (1945) described two new species from the Baudó River, a small river which drains a coastal mountain range that lies between the San Juan River basin to the south (type locality of *A. centrolepis*) and the Atrato River to the north where *A. centrolepis* is also present (Fig 4). Fowler's descriptions were mostly based upon differences in spotting: *Pristiancistrus eustictus* was the name erected for the more heavily spotted and spiny individuals and *Ancistrus baudensis* for the plain form. In collections with larger series of individuals, we find some fish are uniformly blackish, but others with obscure spots on the fins and sometimes the abdomen. Fishes from the Baudó River fish have a brown or gray base color, and are everywhere covered with dark spots that range from round to oblong, with some running together to form short lines. Specimens from the Atrato can be plain black, or dark with darker spotting (Fig. 6).

Etymology. Although no explanation for the derivation of the name *centrolepis* was given in the original description we believe that this species was so named to call attention to the unusually spiny lateral plates, a notable feature of this species, and one that led Fowler (1945) to erect a distinct genus, *Pristiancistrus* for them. In Latin *centrum* means "a prickle or sharp point", and *lepis* refers to the plates (Crane 2011).

Ancistrus chagresi Eigenmann & Eigenmann 1889

(Fig. 7).

Images of syntypes MCZ 8026 available at the All Catfish Species Inventory website:
http://acsi.acnatsci.org/base/image_list.html?mode=genus&genus=Ancistrus

Ancistrus (Hypostomus) cirrhosus (*non*Valenciennes), Kner & Steindachner 1864:61, one male specimen reported from Río Chagres, misidentification.

Chaetostomus cirrhosus, Günther 1867:478, listed for Río Chagres, misidentification.

Ancistrus chagresi, Eigenmann & Eigenmann 1889: 47. Type locality: Río Chagres, Panama [a drainage of the northeastern Caribbean slope of Panama]. Syntypes: MCZ 8026 (2). Eigenmann 1905 lists from only Caribbean slopes of Panama; Meek & Hildebrand 1916, lists from Río Chagres Basin and Río Chorrera, Pacific slope, Panama; Eigenmann 1922, lists from both slopes of Panama; Kramer and Graham 1976, air breathing; Graham 1997, air breathing; Hildebrand 1938, reports from both slopes of central Panama; Evans 1952, behavior and color notes. Smith & Bermingham 2005, list in table.

Xenocara chagresi, Regan 1904, 1905, 1906, 1908, Río Chagres.

Ancistrus spinosus, Power 1983, 1984a, b, c, ecology, misidentification.

Diagnosis. *Ancistrus chagresi* can be diagnosed from the potentially sympatric *A. centrolepis* by having white spots on the dorsum, sides, ventrum and fins (vs. usually plain black, brown, or dark gray, but sometimes has black spots on the dorsum, sides or ventrum) by the presence of moderately enlarged odontodes along posterior edge of plates only (vs. one to three rows of greatly enlarged odontodes); and by a pectoral-fin spine length/dorsal-adipose distance ratio of 1.2%–1.9% (vs. 1.9%–3.7% in all specimens of *A. centrolepis* examined except one, which is 1.4%) Fig. 3D. *Ancistrus chagresi* can be diagnosed from other white-spotted trans-Andean *Ancistrus* by having well-developed white spots on the caudal fin in life (vs. dark spots; white spots are often faded on *A. chagresi*, but dark spots on the other species always present); from *A. galani* by having fully developed eyes and pigment (vs. eyes reduced and pigment absent or reduced); from *A. tolima* and *A. vericaucanus* by usually having one preadipose plate (vs. 2 or more); from *A. tolima* by having the adipose-fin spine at a 45° to the dorsum (vs. adnate).

Description. N = 30. Morphometric data in Table 3. Size range in this study: 51–171 mm SL, maximum length: 195 mm SL (Fisch-Muller 2003).

TABLE 3. Selected morphometrics of *Ancistrus chagresi* and *A. martini*.

	A. chagresi (n=30)			*A. martini* (n=48)		
	Mean	SD	Range	Mean	SD	Range
SL (mm)	95.7		50.5–170.7	61.1		44.0–110.8
%SL						

..... *continued on the next page*

TABLE 3. (Continued)

	A. chagresi (n=30)			*A. martini* (n=48)		
	Mean	SD	Range	Mean	SD	Range
Predorsal Length	45.7	1.7	42.5–49.8	47.5	1.5	44.2–51.0
Head Length	36.3	1.7	34.0–40.6	37.8	1.7	33.8–41.5
Head-dorsal Length	10.0	1.1	8.6–11.9	10.6	1.3	7.6–14.1
Cleithral Width	31.9	3.0	26.7–38.8	32.3	1.3	28.8–34.6
Head-pectoral Length	28.3	1.5	25.1–31.3	28.7	1.7	24.0–31.7
Thorax Length	25.0	1.6	20.6–28.2	25.7	1.7	21.8–31.6
Pectoral-spine Length	31.3	1.8	27.1–36.1	32.4	2.2	25.1–36.9
Abdominal Length	23.1	1.4	20.4–27.0	22.8	1.4	19.3–27.7
Pelvic-spine Length	24.8	1.2	22.4–27.4	26.0	1.8	22.3–33.8
Postanal Length	30.6	1.2	28.4–34.0	30.6**	1.8	27.8–36.5
Anal-fin spine Length	9.9	1.2	7.9–12.5	9.8	1.1	7.3–12.4
Dorsal-pectoral Distance	28.5	1.1	25.8–30.6	28.5	1.2	26.1–31.1
Dorsal spine Length	29.3	2.3	25.0–33.4	27.7***	2.0	21.8–32.3
Dorsal-pelvic Distance	21.7	2.9	14.2–26.3	21.5	2.1	18.3–26.8
Dorsal-fin base Length	24.2	2.3	20.7–29.0	24.0	1.2	21.6–27.1
Dorsal-adipose Distance	19.6	1.7	17.1–25.1	17.9	1.7	14.4–21.1
Adipose-spine Length	8.6	1.1	6.1–10.7	8.4	1.3	4.9–12.0
Adipose-upper caudal Distance	13.1	1.0	11.4–15.1	12.4	1.4	8.6–15.2
Caudal peduncle Depth	11.5	0.7	10.1–13.1	11.1	0.8	9.4–12.8
Adipose-lower caudal Distance	20.2	1.0	18.2–23.0	19.4	1.1	16.9–22.1
Adipose-anal Distance	20.4	1.5	17.9–23.8	19.7	1.5	16.9–22.9
Dorsal-anal Distance	16.4	1.2	14.5–18.4	15.1	0.9	13.1–17.5
Pelvic-dorsal Distance	23.2	2.4	19.5–28.2	24.4**	1.8	19.8–28.8
% Head Length						
Head-eye Length	43.5	2.9	36.3–49.0	39.0**	2.1	33.7–43.8
Orbit Diameter	16.4	2.5	12.5–20.4	15.6	1.8	11.0–19.2
Snout Length	57.5	4.2	51.0–65.3	60.7	2.3	55.5–65.3
Internares Width	20.8	2.4	15.7–25.9	16.5	1.3	13.0–19.9
Interorbital Width	58.6	2.3	52.4–63.0	57.3	3.3	51.0–67.0
Head Depth	65.0	2.7	61.0–73.4	62.2	3.5	53.9–69.9
Mouth Length	46.4	4.7	36.9–57.5	47.4	2.8	41.8–54.3
Mouth Width	52.3	5.2	43.8–62.5	53.6	4.2	45.3–62.4
Barbel Length	3.6*	1.7	0.6–6.6	5.3*	1.7	2.6–9.5
Dentary tooth cup Length	16.9	2.2	13.0–21.3	16.7	2.0	12.4–19.6
Premaxillary tooth cup Length	17.3	2.3	13.1–21.6	16.7	2.0	11.6–20.9

*n=29, **n=47, ***n=46

Body anteriorly broad, widest in region posterior to pectoral-fin insertions. Body somewhat depressed, deepest at or just anterior to dorsal-fin origin. Caudal peduncle posteriorly compressed. Dorsal profile of head and body convex from tip of snout tip to dorsal-fin origin, from there, gently convex and sloping gradually down to just posterior to tip of adipose-fin spine, flat to tip of adipose spine then angled dorsally ~45° to caudal fin. Ventral profile flat to caudal peduncle, then sloping gently ventrally towards caudal fin.

FIGURE 7. *Ancistrus chagresi*, AUM 32114, 73.3 mm SL, Río Frijoles, tributary of Río Chagres, Panama (type locality).

Head broad, interorbital width about equal to depth of body. Snout rounded with large broad naked margin in males, less wide in females and juveniles. Snout length greater than one-half head length. Eye large, upper margin of orbit not protruding from dorsal profile of head. Oral disk ovate, wider than long. Lips covered with minute papillae, larger near mouth. Lower lip moderate in size, not reaching gill aperture, its border covered with very small papillae. Maxillary barbel short, its length less than orbit diameter. Dentary tooth row straight, about same size as premaxillary tooth row. Teeth numerous (60–140 per jaw ramus), slender, asymmetrically bifid, medial cusp much larger and spatulate, lateral cusp minute and pointed, usually not reaching more than half length of medial cusp, but equal in worn teeth. Hypertrophied cheek odontodes strongly evertible, seven to 18 odontodes of various lengths hooked anteriorly bases encased in thick fleshy sheaths. Head smooth, bones on back of head not carinate. Ventral surface of head and abdomen mostly naked, some specimens with small platelets covered with odontodes

near base of pectoral-fin spine. Nuchal plate small and curved posterolaterally. No enlarged odontodes at edge of lateral plates. Five series of lateral plates anteriorly, three series on caudal peduncle, middorsal and mid-ventral plate series end on caudal peduncle beneath adipose fin. Last plate in median series slightly smaller than penultimate plate, base of caudal fin with about four small platelets after main series, then about eight roughly triangular platelets covering bases of caudal-fin rays.

Dorsal-fin origin situated anterior to vertical through pelvic-fin insertion. Dorsal fin variable in shape and length, its first ray not elongate, just slightly longer than snout length; last dorsal-fin ray usually not reaching adipose fin when depressed. Dorsal fin moderately elevated; dorsal-fin base length greater than dorsal-adipose distance. Adipose fin with stout spine and well developed adnate membrane that adheres to plate just anterior to first procurrent caudal-fin ray. Pectoral fins reaching past base of pelvic fins, but failing to reach the middle of these fins, the spine notably shorter than head. Anal fin small, its origin posterior to vertical through base of last ray of dorsal. Pelvic fins reaching well past anal-fin origin, inserted posterior to vertical through first branched dorsal-fin ray. Caudal fin with straight oblique or slightly concave margin, the lower rays the longest.

Tiny odontodes present on body plates, largest on posterior margins of plates. All fin spines with small odontodes, more developed in pectoral-fin spine of males. All fin rays with tiny odontodes on rays. Abdomen without exposed platelets anterior to anal-fin spine.

Mid-dorsal plates 18(10), 19(6), 20(8), 21(3); median plates 23(9), 24(18); mid-ventral plates 18(9), 19(10), 20(3), 21(5); plates bordering dorsal-fin base 6(6), 7(14), 8(7); plates between dorsal and adipose fins 5(5), 6(9), 7(12), 8(1); preadipose plates: 1(26), 2(1). Fin-ray formulae (N=27): dorsal i,7; pectoral i,6; pelvic i,5; anal i,3(2) i,4 (25); caudal i,14,i. Caudal procurrent spines: dorsal: 4(4), 5(23), ventral: 3(8), 4(19).

Color in alcohol. (Fig. 7) The syntypes (MCZ 8026) are now completely depigmented. Some preserved specimens are uniformly dark on dorsum, but many still have light spots visible over dark background. Flanks dark with large, light rounded spots. Abdomen tan or brown with light spots which vary in size, shape and number among individuals. Fins brownish with distinct light spots. In newer material, dorsal, caudal, pelvic and pectoral fins have dark spots on spine and fin rays. Pale spots observed in preserved specimens said to be light green in life (Meek & Hildebrand 1916, Hildebrand 1938), but specimens collected by JWA were white. Smaller individuals may have four or five lighter tan saddles.

Distribution. Central America on both slopes of Central Panama (Fig. 4). Along the Caribbean slope it has been found in the Chagres and Gatun River basins. On the Pacific side it is known only from the Chorrera River drainage (also called Caimito River on modern maps), just west of Panama City. Its current distribution has been affected by the construction of the Panama Canal. This species has penetrated further into Central America than any other *Ancistrus*.

Remarks. This species was named for the Chagres River (Caribbean Sea drainage) of north central Panama, which was largely impounded to form the Panama Canal.

***Ancistrus martini* Schultz 1944**

(Figs. 8 and 9)

Images of the holotype of this species, USNM 121064, are available at the All Catfish Species Inventory website: http://acsi.acnatsci.org/base/image_list.html?mode=genus&genus=Ancistrus

Ancistrus triradiatus martini, Schultz 1944: 302, pl. 9 (fig. C). Type locality: Río Táchira, 7 km. north of San Antonio, Catatumbo system; Venezuela. Holotype: USNM 121064. Paratypes: MCZ 37233 (1), USNM 120094 (1), 121065 (3, now 2, 1 to MCZ); Pérez & Viloria (1994).

Ancistrus martini, Schultz 1944. Isbrücker (1980) raised subspecies to species level; Ferraris & Vari (1992) (type catalog); Burgess 1989; Isbrücker (2001); Isbrücker (2002); Fisch-Muller (2003) Ferraris (2007) (list).

Ancistrus brevifilis bodenhameri, Schultz 1944:305, pl. 10 (fig. A). Type locality: Río San Pedro at the bridge south of Mene Grande, Motatán system; Venezuela. Holotype: USNM 121066. Paratypes: MCZ 37241 [ex USNM 121067] (3); UMMZ 141940 [ex USNM 121067] (6); USNM 121067 (132, now 123), 121068–69 (1, 2), 121299 (1). Isbrücker (1980), relocated to species level, Pérez & Galani (1994).

Ancistrus bodenhameri, Schultz 1944. Ferraris & Vari (1992) list; Pérez & Viloria (1994); Isbrücker (1980); Burgess (1989); Isbrücker (2001); Isbrücker (2002); Fisch-Muller (2003); Ferraris (2007).

Diagnosis. *Ancistrus martini* can usually be distinguished from *Ancistrus caucanus* by having a snout length to head length ratio of 55.5–65.3% (vs. 45.9–55.9%). Although pigmentation is notoriously variable among individuals of most *Ancistrus* species examined, most specimens of *Ancistrus martini* can be distinguished from *A. caucanus*, *A. tolima*, and *A. vericaucanus* by having better defined light spots on body and fins in addition to relatively small dark spots on the fin rays and membranes that form six to nine irregular bands on the caudal fin (vs. three to five regular or irregular bands) and seven to nine spots along the pectoral-fin spine (vs. three to six spots). They also differ in the ratio of head-eye length to snout length: 53.9–72.1% in specimens greater than 60 mm SL (vs. 72.3–91.9%; Fig. 3C). *A. martini* differs from *A. centrolepis* by having white spots on the body (vs. dark spots on body or body entirely gray), by lacking rows of enlarged odontodes on the lateral plates (vs. one to three rows of greatly enlarged odontodes) and by having the longest odontodes on the lateral plates less than half as long as the supporting plate is wide (vs. longest odontodes almost as long as the supporting plate is wide); from *A. galani* by having fully developed eyes and pigment (vs. eyes reduced and pigment absent or reduced); from *A. tolima* and *A. vericaucanus)* by usually having one preadipose plate (vs. two to three, rarely one in *A. vericaucanus*, and three to five in *A. tolima*); and from *A. tolima* by having the adipose fin spine at a 45° angle to the body and adipose-fin membrane present (vs. adipose-fin spine adnate and adipose-fin membrane absent).

Description. N = 48. Morphometrics given in Table 3. Size range this study 46–111 mm SL.

Body broadest anteriorly, greatest body width at base of pectoral fins then narrowing progressively to end of caudal peduncle. Head and body somewhat depressed, greatest body depth at or just posterior to pectoral-fin bases. Caudal peduncle deep, posteriorly compressed. Dorsal profile anteriorly convex from tip of snout to dorsal-fin origin; ventral surface of head straight and flat; chest and abdomen with gently convex profile.

Head broad, interorbital width about equal to depth of body. Snout obtuse, naked margin wider in males; snout length greater than one-half head length. Eye moderate, upper orbit margin not protruding from dorsal profile of head. Oral disk ovate, wider than long. Lips covered with minute papillae, larger near mouth. Lower lip moderate in size, not reaching gill aperture, its border covered with very small papillae. Maxillary barbel short, its length less than orbit diameter. Dentary tooth row straight, about same size as premaxillary tooth row. Teeth numerous (45–100 per jaw ramus), asymmetrically bifid, medial cusp much larger and spatulate, lateral cusp minute and pointed, usually not reaching more than half length of medial cusp, but equal in worn teeth. Hypertrophied cheek odontodes strongly evertible, eight to 18 odontodes of various lengths with tips hooked anteriorly, bases encased in thick fleshy sheaths. Head smooth, bones on back of head not carinate; supraoccipital with margins between surrounding bones and plates usually clearly visible. Lateral plates not carinate.

Ventral surface of head and abdomen naked. Nuchal plate small and curved posterolaterally. No enlarged odontodes at edge of lateral plates. Five series of lateral plates anteriorly, three series on caudal peduncle, middorsal and mid-ventral plate series end on caudal peduncle beneath adipose fin. Last plate in median series slightly smaller than penultimate plate, base of caudal fin with about four small platelets after main series, then about eight roughly triangular platelets covering bases of caudal-fin rays.

Dorsal-fin origin situated anterior to vertical through pelvic-fin insertion. Dorsal fin moderately elevated, usually reaching preadipose plate when depressed; dorsal-fin base length noticeable greater than dorsal-adipose distance. Adipose fin well developed, spine stout, elevated from body at about a 45º angle. Pectoral fins reaching past base of pelvic fins, but failing to reach the middle of these fins, the spine shorter than head. Anal fin small, its origin at vertical through base of last ray of dorsal. Pelvic fins reaching well past anal-fin origin, inserted posterior to vertical through first branched dorsal-fin ray. Caudal fin with gently convex margin.

Tiny odontodes present on body plates, largest on posterior margins of plates. All fin spines with small odontodes, more developed in pectoral-fin spine of males. All fin rays with tiny odontodes on rays.

Mid-dorsal plates 5(1), 6(2), 7(3), 8(6), 9(9), 10(8), 11(3), 12(2), 16(2), 17(3), 18(5), 19(1); median plates 21(1), 22(7), 23(23), 24(14); mid-ventral plates 14(1), 16(18), 17(12), 18(8), 19(3) 20(2); plates bordering dorsal-fin base 6(13), 7(28), 8(3), 9(1); plates between dorsal and adipose fins 6(3), 7(40), 8(2); preadipose plates: 1(45). Fin-ray formulae (N=44): dorsal i,7; pectoral i,6; pelvic i,5; anal i,3(1) i,4 (43); caudal i,14,i. Caudal procurrent spines: dorsal: 4(7), 5(37), ventral: 2(2), 3(28), 4(14).

Color in alcohol. (Fig. 8). Base color brown, numerous light spots present on head, barbels and body, head spots smallest anteriorly, larger posteriorly. Flanks usually brown with large, light rounded spots. Abdomen usually tan or brown with light spots which vary in size, shape and number among individuals, sometimes running together to form vermiculations. Fins brownish with alternating dark and light spots on rays. In newer material, the dorsal,

caudal, pelvic and pectoral fins have dark spots on spine and fin rays that may extend onto membranes to form bands.

FIGURE 8. *Ancistrus martini* INHS 35367 specimen, 73.2 mm SL, Taguara Creek, Santa Ana River drainage, Lake Maracaibo Basin, 51 mm SL. Photograph by Nathan K. Lujan.

Distribution. Venezuela and Colombia, rivers of Lake Maracaibo Basin.

Remarks. Schultz described two new subspecies from the Lake Maracaibo Basin (1944): *Ancistrus brevifilis bodenhameri* and *Ancistrus triradiatus martini*, each of which has been subsequently considered as valid species (Fisch-Muller, 2003). However, our morphometric analysis failed to detect significant differences between them. Schultz diagnosed his subspecies based on the color pattern of the ventrum: with separate spots in *A. brevifilis bodenhameri* and spots sometimes running together to form vermiculations in *A. triradiatus martini*. We have found great individual variation in the pigmentation pattern of the ventrum of specimens from the Lake Maracaibo Basin and so that character is not useful for distinguishing them. Based on both morphometric and pigmentation pattern differences we consider the Maracaibo species as distinct from both *A. triradiatus* (which occurs on the southern flank of the Andes in the Orinoco River Basin) and *A. brevifilis* (which occurs in the Tuy River Basin of coastal Caribbean central Venezuela). We therefore consider *Ancistrus brevifilis bodenhameri* Schultz 1944 as a synonym of *Ancistrus martini* Schultz 1944.

FIGURE 9. *Ancistrus martini*, live, collected by and photographed by Gustavo Ballen from the upper Zulia River.

***Ancistrus tolima*, new species, Taphorn, Armbruster, Villa-Navarro and Ray**

(Figs. 10 and11)

Holotype: CZUT-IC 4040 (ex CZUT-IC 2083). Quebrada El Pescado, 3.599306°, -74.854556°, 1187 masl, vereda San Pablo, municipio de Dolores, departamento de Tolima, Colombia.

Paratypes: CZUT-IC 2083, AUM 54491 (2) (ex CZUT-IC 2083), same as type locality.

Diagnosis. *Ancistrus tolima* can be diagnosed from all other trans-Andean *Ancistrus* by lacking an adipose fin membrane (adipose-fin spine completely adnate) and three to five preadipose plates (vs. usually one, occasionally two in most species and two to three in *A. vericaucanus*); and from all other trans-Andean *Ancistrus* except *A. vericaucanus* by having the pectoral fin maximally reaching pelvic-fin spine when depressed ventral to pelvic fin (vs. pectoral fin reaching past middle of base of pelvic fin when depressed ventral to pelvic fin). *Ancistrus tolima* can further be separated from *A. centrolepis* by lacking one to three rows of enlarged odontodes on the lateral plates and no odontodes on lateral plates longer than half the width of the supporting plate (vs. rows of odontodes present with some odontodes almost as long as the supporting plate is wide); from *A. galani* by having fully developed eyes and pigment (vs. eyes reduced and pigment absent or reduced); from *A. martini* by having a head-eye length to snout length ratio of 71.2–91.9% (vs. 53.9–73.9%; Fig. 2C); and from *A. vericaucanus* by usually having four to five, occasionally three, preadipose plates (vs. two to three) and a dentary tooth cup length to SL ratio of 5.7–9.1% (vs. 4.7–5.3%; Fig. 2B).

Description. N=10. Morphometrics given in Table 4. Size range this study: 26–77 mm SL.

A relatively small *Ancistrus*, body broadest anteriorly, greatest body width just posterior to opercles, then narrowing progressively to end of caudal peduncle. Head and body depressed, greatest body depth between level of pectoral-fin insertions and dorsal-fin origin. Caudal peduncle deep, robust, compressed posteriorly. Dorsal profile of head ascending steeply in convex arc from tip of snout tip to just posterior of orbits, ascending in straight line to posterior tip of supraoccipital, then descending to dorsal-fin origin. From there, descending in gently convex arc to just posterior of dorsal-fin base, then straight to caudal fin. Ventral profile flat to slightly convex from tip of snout to pelvic-fin insertions, abdomen flat to slightly concave to pelvic-fin insertions, from there, straight to slightly convex and sloping gently ventrally towards caudal fin.

TABLE 4. Selected morphometrics of *Ancistrus tolima* and *A. vericaucanus*.

	A. tolima (n=11)			*A. vericaucanus* (n=10)		
	Mean	SD	Range	Mean	SD	Range
SL (mm)	45.5*		26.7–77.1	56.5		43.2–72.1
%SL						
Predorsal Length	46.7	1.5	44.2–49.6	47.3	2.3	45.0–51.9
Head Length	38.4	1.7	35.5–40.7	36.8	1.6	34.3–39.4
Head-dorsal Length	9.1	1.2	7.2–10.6	11.0	0.6	10.0–11.8
Cleithral Width	33.5	0.7	32.6–34.8	31.6	1.7	30.1–35.4
Head-pectoral Length	28.2	1.3	26.2–30.2	27.4	1.3	25.4–29.4
Thorax Length	25.0	1.1	23.6–27.0	25.1	2.2	22.1–28.8
Pectoral-spine Length	24.6	1.7	21.8–27.4	25.0	1.6	21.8–26.8
Abdominal Length	22.5	1.5	20.4–24.9	21.4	1.0	19.6–22.6
Pelvic-spine Length	22.4	1.9	19.8–25.4	23.3	2.1	19.8–26.0
Postanal Length	30.8	2.0	28.9–35.7	32.7	1.6	30.0–35.3
Anal-fin spine Length	9.8	1.2	8.0–12.9	12.1	1.2	9.8–13.7
Dorsal-pectoral Distance	29.2	1.1	27.8–31.3	30.3	1.0	28.3–31.9
Dorsal spine Length	25.0**	1.4	22.2–26.9	24.7	1.5	20.8–26.3
Dorsal-pelvic Distance	19.9	2.2	16.7–22.3	21.6	1.5	18.5–23.3
Dorsal-fin base Length	21.0	1.1	19.3–23.0	20.4	1.3	18.2–22.0
Dorsal-adipose Distance	20.7	2.2	17.6–25.5	20.9	2.5	17.7–24.3
Adipose-spine Length	7.2	2.8	3.9–12.9	7.3	1.3	5.5–9.3
Adipose-upper caudal Distance	13.0	2.3	10.2–15.9	15.4	1.2	13.8–17.3
Caudal peduncle Depth	9.2	0.9	7.7–10.5	9.3	0.7	8.2–10.3
Adipose-lower caudal Distance	19.0	1.9	16.3–21.5	19.5	0.9	18.1–21.4
Adipose-anal Distance	20.9	1.8	18.5–24.0	21.3	1.3	19.4–23.1
Dorsal-anal Distance	13.8	0.8	12.5–14.9	15.9	0.8	14.5–16.9
Pelvic-dorsal Distance	23.1	2.0	18.0–25.3	23.3	1.1	21.2–24.8
% Head Length						
Head-eye Length	43.8	3.6	35.6–46.4	45.3	1.9	41.9–48.8
Orbit Diameter	15.9	2.2	11.7–18.7	15.1	1.9	12.5–18.4
Snout Length	51.4	1.5	49.5–53.8	54.9	2.7	51.7–59.8
Internares Width	13.5	1.7	11.7–17.8	18.0	1.0	16.1–19.2
Interorbital Width	53.2	2.8	47.8–56.8	55.2	2.1	53.2–60.3
Head Depth	63.4	2.5	59.8–67.2	66.7	2.0	63.3–69.1
Mouth Length	41.3	4.0	36.7–48.6	44.0	2.2	39.9–47.8
Mouth Width	50.8	5.2	44.7–62.5	48.0	3.6	42.2–53.7
Barbel Length	4.0***	1.3	1.9–6.2	3.4	0.8	2.6–5.1
Dentary tooth cup Length	18.2	2.4	14.2–23.4	13.4	0.7	12.7–14.8
Premaxillary tooth cup Length	16.7	2.0	13.1–19.7	13.5	1.7	11.8–16.1

n=13, **n=8, ***n=10

FIGURE 10. *Ancistrus tolima* CZUT-IC 2083, 72.6 mm SL, paratype, upper Magdalena River drainage, Quebrada El Pescado, Tolima.

Head wide, interorbital width equal or slightly less than head depth, slightly less than half of head length. Snout rounded with large broad naked margin in males, less wide in females and juveniles. Snout length about one-

half head length. Eye moderate in size, interorbital area slightly convex. Oral disk ovate, wider than long. Lips covered with minute papillae, larger near mouth. Lower lip moderate in size, not reaching gill aperture, its border covered with very small papillae. Maxillary barbel very short, its length less than orbit diameter. Dentary tooth row straight, about same size as premaxillary tooth row. Teeth numerous (50–86 per jaw ramus), asymmetrically bifid, medial cusp much larger and spatulate, lateral cusp minute and pointed, usually not reaching more than half length of medial cusp, equal in worn teeth. Hypertrophied cheek odontodes strongly evertible, 13–23, stout with tips hooked anteriorly, bases encased in thick fleshy sheaths. Exposed part of opercle small, roughly triangular with few odontodes. Head smooth, bones on back of head not carinate; supraoccipital with margins between surrounding bones and plates usually clearly visible. Lateral plates not carinate, lateral line pores distinctly visible, horizontally elongate.

FIGURE 11. Live holotype of *Ancistrus tolima* (photo: J. E. García-Melo) Quebrada El Pescado, 3.599306º, -74.854556º, 1187 msnm, vereda San Pablo, municipio de Dolores, departamento de Tolima, Colombia.

Ventral surface of head and abdomen naked, no exposed platelets anterior to anal-fin spine. Nuchal plate small and curved posterolaterally. No enlarged odontodes at edge of lateral plates. Five series of lateral plates anteriorly, three series on caudal peduncle, middorsal and mid-ventral plate series end on caudal peduncle beneath preadipose plate just anterior to embedded adipose-fin spine. Last plate in median series slightly smaller than penultimate plate, base of caudal fin with vertical column of about four small platelets after main series, and about six roughly triangular platelets covering bases of caudal-fin rays.

Dorsal-fin origin situated anterior to vertical through pelvic-fin insertion. First dorsal-fin ray not elongate, just slightly longer than snout length; last dorsal-fin ray reaching first preadipose plate when depressed. Adipose-fin spine (if present) embedded, oriented parallel to horizontal axis of body, membrane absent, not visible beneath spine. Pectoral spine short, stout, reaching past pelvic-fin insertions but only to anterior third of pelvic fins. Anal fin small but well developed; base of first anal-fin pterygiophore covered by skin, its origin below or posterior to vertical through base of last dorsal-fin ray. Pelvic fins reaching well past anal-fin origin, inserted posterior to vertical through first branched dorsal-fin ray. Caudal fin truncate, lower lobe slightly longer than upper.

Tiny odontodes present on body plates, largest on posterior margins of plates. All fin spines with small odontodes, more developed in pectoral-fin spine of males. All fin rays with tiny odontodes on rays.

Mid-dorsal plates 15(1), 18(2), 19(6); median plates 23(9); mid-ventral plates 17(3), 19(2), 20(3), 21(1); plates bordering dorsal-fin base 7(8), 8(2); plates between dorsal and adipose fins 3(9), 4(2), 5(1); preadipose plates: 3(4), 4(3), 5(5). Fin-ray formulae invariable (N=7): dorsal i,7; pectoral i,6; pelvic i,5; anal i,4; caudal i,14,i. Caudal procurrent spines: dorsal: 3(1), 4(3), 5(6), ventral:1(1), 3(9).

Color in alcohol. (Fig. 10) Base color brown or gray, often with lighter brown spots on soft nose and top of head. All fins with at least faint alternating dark and light (sometimes yellowish) spots present on spine and branched rays that align to form four-six curved, transverse bands alternating with rows of lighter spots on the

dorsal, caudal, pelvic and pectoral fins, membranes dark brown, tips often blackish. Pale vertical bar at base of caudal fin narrow, sometimes absent. Ventral surface of head and abdomen tan to yellowish tan, oral disk whitish, plates of ventral surface of caudal peduncle with posterior margins darker brown, forming alternating light and dark pattern.

Life Colors. (Fig. 11) Dorsum dark olive green to brown with light green to yellowish spots (about one fourth orbit diameter in size) concentrated on soft nose, tentacles and top of head. Body posterior to dorsal-fin origin with fewer spots, and darker, almost black base color; posterior caudal peduncle (adjacent to caudal fin) with narrow light brown vertical bar. Preadipose plate and vestiges of adipose-fin spine outlined in yellow. Sides with irregular light spots, some forming horizontal rows. Ventrum of body not observed in live specimens. Oral disk and adjacent area on chest pink to whitish. Fin membranes darkly pigmented, almost black, but spines and rays marked with four-six alternating dark olive green or blackish and whitish or light green sections. Caudal fin spine and rays with alternating light and dark sections often aligned to form three-four vertical arcs.

Distribution. Upper Magdalena River drainage, subdrainage río Prado, Tolima, Colombia.

Etymology. *tolima* is a noun in apposition, and refers to the princess Yulima who was executed and martyred by the Spanish conquistadores, and to the Department of Tolima, where the type locality is located.

Remarks. El Pescado creek has a sand and gravel substrate, abundant allochthonous organic material, and steep banks with little shoreline vegetation. The average depth of the type locality is 0.5 m. It is a small tributary of Quebrada Aco, which used to flow into the Negro River. However, since the construction of the El Prado reservoir, Quebrada Aco empties directly into the lake, which is located on the western flank of the Cordillera Oriental of the Colombian Andes, in the Department of Tolima, upper Magdalena River drainage.

Ancistrus vericaucanus, new species, Taphorn, Armbruster, Villa-Navarro and Ray

(Fig. 12)

Holotype. MPUJ 6020 (1, 72.1 mm SL) Colombia, Departamento Valle del Cauca, Cauca River drainage, Finca Santa Barbara, río La Vieja, 1278 masl, 7 Nov. 2006. 4.59222º, -75.778667º.

Paratypes. MPUJ 3023 (6, 46.8-70.5 mm SL), collected with holotype; IUQ 2814 (1, 67.8 mm SL) Colombia, Departamento Valle del Cauca-Quindío, Cauca River drainage, Quebrada La Paloma, tributary of the Roble River, in "Montaña del Ocaso" Nature Preserve, La Vieja River drainage, upper Cauca 4.579722°, -75.849722°, 1103 masl; IUQ 3153 (1, 58.3 mm SL) Colombia, Departamento Quindío, Quebrada El Broche, tributary of the Barragán River, La Vieja River drainage, upper Cauca, 4.36556°, -75.771944, 1114 masl.

Diagnosis. *Ancistrus vericaucanus* can be diagnosed from all other trans-Andean *Ancistrus* by having two to three preadipose plates (vs. usually one, occasionally two in most species and four to five, occasionally three, in *A. tolima*); and from all other trans-Andean *Ancistrus* except *A. tolima* by having the pectoral fin maximally reaching pelvic-fin spine when depressed ventral to pelvic fin (vs. pectoral fin reaching past middle of base of pelvic fin when depressed ventral to pelvic fin). *Ancistrus vericaucanus* can further be separated from *A. caucanus* by having a dentary tooth cup length to SL ratio of 4.7–5.3% (vs. 5.9–7.7%; Fig. 3B); from *A. centrolepis* by lacking one to three rows of enlarged odontodes on the lateral plates and no odontodes on lateral plates longer than half the width of the supporting plate (vs. rows of odontodes present with some odontodes almost as long as the supporting plate is wide); from *A. galani* by having fully developed eyes and pigment (vs. eyes reduced and pigment absent or reduced); from *A. martini* by having a head-eye length to snout length ratio of 72.3–88.7% (vs. 53.9–72.1% in specimens greater than 60 mm SL; Fig. 3C), dark spots on the fins relatively large forming three to four irregular bands on the caudal fin (vs. six to nine irregular bands) and three five spots along the pectoral-fin spine (vs. seven to nine spots); and from *A. tolima* by having an adipose-fin membrane, usually having two to three, occasionally one, preadipose plates (vs. four to five, occasionally three), and a dentary tooth cup length to SL ratio of 4.7–5.3% (vs. 5.7–9.1%; Fig. 3B).

Description. N=10. Morphometrics given in Table 4. Size range this study: 47–72 mm SL.

A relatively small *Ancistrus*, body broadest anteriorly, greatest body width just posterior to opercles, when spines extended or just behind pectoral-fin insertions if spines closed; then narrowing progressively to end of caudal peduncle. Head and body depressed, greatest body depth just anterior to dorsal-fin origin. Caudal peduncle deep, robust, compressed posteriorly. Dorsal profile of head ascending steeply in convex arc from tip of snout tip to

just posterior of orbits, then ascending in gentle concave are to dorsal-fin origin. From there, descending in gently convex arc to just posterior of adipose-fin posterior margin, and then gently ascending to caudal fin. Ventral profile flat to slightly convex from tip of snout to pelvic-fin insertions, then ascending to anal-fin origin, and less steeply to caudal-fin base

FIGURE 12. Holotype of *Ancistrus vericaucanus*, MPUJ 6020 (72.1 mm SL).

Head wide, interorbital width equal or slightly less than head depth, slightly more than half of head length. Snout rounded with large broad naked margin in males, less wide in females and juveniles. Snout length about one-half head length. Eye moderate in size, interorbital area slightly convex. Oral disk ovate, wider than long. Lips covered with minute papillae, larger near mouth. Lower lip moderate in size, not reaching gill aperture, its border covered with very small papillae. Maxillary barbel very short, its length less than orbit diameter. Dentary tooth row straight, about same size as premaxillary tooth row. Teeth numerous (29–50 per jaw ramus), asymmetrically bifid, medial cusp much larger and spatulate, lateral cusp minute and pointed, usually not reaching more than half length of medial cusp, equal in worn teeth. Hypertrophied cheek odontodes strongly evertible, 16–20, stout with tips hooked anteriorly, bases encased in thick fleshy sheaths. Exposed part of opercle small, roughly in shape of narrow triangle with few odontodes. Head smooth, bones on back of head not carinate; supraoccipital with margins between surrounding bones and plates usually clearly visible. Lateral plates not carinate, lateral line pores distinctly visible, horizontally elongate.

Ventral surface of head and abdomen naked, no exposed platelets anterior to anal-fin spine. Nuchal plate small and curved posterolaterally. No enlarged odontodes at edge of lateral plates. Five series of lateral plates anteriorly, three series on caudal peduncle, middorsal and mid-ventral plate series end on caudal peduncle beneath adipose-fin spine. Last plate in median series slightly smaller than penultimate plate, base of caudal fin with vertical column of about four small platelets after main series, and about six roughly triangular platelets covering bases of caudal-fin rays.

Dorsal-fin origin situated anterior to vertical through pelvic-fin insertion. First dorsal-fin ray not elongate, just slightly longer than snout length; last dorsal-fin ray reaching first preadipose plate when depressed. Adipose-fin spine (if present) embedded, oriented parallel to horizontal axis of body, membrane absent, not visible beneath spine. Pectoral spine short, stout, reaching past pelvic-fin insertions but only to anterior third of pelvic fins. Anal fin small but well developed; base of first anal-fin pterygiophore covered by skin, its origin below or posterior to vertical through base of last dorsal-fin ray. Pelvic fins reaching well past anal-fin origin, inserted posterior to vertical through first branched dorsal-fin ray. Caudal fin truncate, lower lobe slightly longer than upper.

Tiny odontodes present on body plates, largest on posterior margins of plates. All fin spines with small odontodes, more developed in pectoral-fin spine of males. All fin rays with tiny odontodes on rays.

Mid-dorsal plates 17(2), 18(1), 19(4), 20(3); median plates 22(1), 23(7), 24(2); mid-ventral plates 17(2), 18 3, 19(2), 20(2), 21(1); plates bordering dorsal-fin base 6(1), 7(9); plates between dorsal and adipose fins 3(1), 4(6), 5(2), 7(1); preadipose plates: 2(7), 3(3). Fin-ray formulae invariable (N=10): dorsal i,7; pectoral i,6; pelvic i,5; anal i,4; caudal i,14,i. Caudal procurrent spines: dorsal: 3(3), 4(2), 5(5), ventral: 3(8), 4(2).

Color in alcohol. (Fig. 12) Dorsal and lateral base color dark gray to brown mottled with light brown, and sometimes lighter brown spots concentrated top of head. Soft nose and tentacles also dark with irregular lighter spots. Some plates of dorsum dark brown edged in lighter brown. All fins with three-four alternating dark brown to black and light brown spots present on spine and branched rays. Fin membranes usually not spotted except on caudal fin. Dark spots on rays of caudal fin not aligning to form vertical bars or arcs. Ventral surface of head and abdomen tan with large irregular lighter spots and vermiculations. Oral disk whitish. Base of caudal fin with light tan area on dorsal and ventral margin of caudal peduncle, but not forming complete light vertical bar. Color in life not available.

Distribution. Upper Cauca River, a tributary to the Magdalena River in Colombia.

Etymology. *veri* is Latin for true, *caucanus* refers to *Ancistrus caucanus*, a species thought originally (but apparently mistakenly), to be from the Cauca River of northern Colombia. As it turns out, *Ancistrus caucanus* occurs in the Magdalena River drainage, not in the Cauca. This new species then, is the true inhabitant of the Cauca River streams, hence the name *vericaucanus*.

Remarks. This species is not sympatric with any other species of *Ancistrus*, and is endemic to the Cauca River in Colombia. See *A. caucanus* remarks for more information.

Discussion

Ancistrus clementinae was described from the trans-Andean region of Ecuador, where it is located in the Gulf of Guayaquil drainage. We have examined only one uncataloged specimen of this species and the type description. It

is most like *A. tolima* and *A. vericaucanus* in that the pectoral fins are short, just reaching the pelvic-fin spine when depressed. It shares with *A. vericaucanus* two preadipose plates and the presence of a low, but not adnate adipose-fin spine. It is clear that *A. clementinae* and *A. vericaucanus* are not conspecific. *Ancistrus clementinae* has a very depressed and narrow body whereas *A. vericaucanus* is much wider and broader. There are so few collections of *Ancistrus* from the highlands of Colombia and Ecuador that there are likely many more species to be discovered.

Material Examined. Standard lengths are given. ***Ancistrus caucanus***: **Colombia:** ANSP 70516 (1, 53.0 mm) Holotype, Cauca (River drainage) (Departamento Antioquia), Sonsón (locality questionable, see text) 1932; IAvHP 10473 (2, 49.0-52.3 mm) Magdalena River Drainage, Departamento Antioquia, Municipio San Rafael, Quebrada La Marucha, vereda Arenal, 6.272222°, -75.030556°, 19 Sep. 2006; IAvHP 10476 (2, 42.3-69.0 mm), Magdalena River drainage, Departamento Antioquia, Municipio San Rafael, Quebrada El Cuervo, salida vía San Rafael - Guatape, 6.296111°, 75.037222°; IAvHP 10480 (2, 40.7-61.5 mm) Magdalena River drainage, Departamento Antioquia, Municipio San Rafael, río El Bizcocho, Samana Norte, 6.30000°, -75.0666°; IAvHP 10481 (1, 43.2 mm), Magdalena River drainage; ICNMHN 17710 (2, 50.2-65.5 mm), Magdalena River drainage, Departamento Santander, El Carmen del Chucuri, Vereda Cañaverales, Quebrada La Negra, 700masl, 6.70000°, -73.510556°, 14 Mar 2011; ICNMHN 17719 (1, 48.4 mm), Departamento Santander, El Carmen del Chucuri, Vereda Cañaverales, Quebrada El Oponcito, 720masl; 6.541389°, -73.508611°, 11 Mar 2011; ICNMHN 17755 (2, 51.8-53.5 mm), Departamento Santander, El Carmen del Chucuri, Vereda Cañaverales, Quebrada El Oponcito, 727masl, 6.707778°, -73.510833°, 14 Mar 2011; ICNMHN 17824 (2, 49.5-49.9 mm) Departamento Santander, El Carmen del Chucuri, Vereda Cañaverales, Quebrada El Oponcito, 724masl; 6.707778°, -73.508889°; USNM 120091 (1, 51.7 mm) Magdalena Basin, Departamento de Cundinamarca, Municipio Apulo, río Apulo en Juntas de Apulo, collected by Niceforo Maria; USNM 120092 (2, 47.2-49.2 mm) Cauca, Departamento Antioquía, Sonsón. ***Ancistrus centrolepis***: **Colombia**: ANSP 71710, holotype of *Pristiancistrus eustictus* (1, 182.9 mm), Departamento del Choco, Pacific slope, Río Baudó, 3000ft; ICNMHN 00104 (8, 91.2-155 mm), Departamento del Choco, Pacific Coast, Río Baudó; FMNH 59477 (2, 69.8-84.8 mm), Departamento del Choco, Truando; FMNH 76217 (2, 108.4-122.5 mm) Departamento del Choco, Pizarro, Pacific side, Sep. 1945; ICNMHN 00189 (2, 116.7-121.1 mm) Departamento del Choco, Becordó; IMCN-PEC 4350 (1, 88.3 mm) Departamento del Choco, Municipio Buenaventura, Quebrada Venenito, San Isidro, Cajambre; IMCN-PEC 4380 (1, 140.3 mm) Departamento del Choco, Municipio Buenaventura, Quebrada Venenito, San Isidro, Cajambre, Municipio Buenaventura; IMCN-PEC 1262 (1, 126.3 mm) Colombia, Departamento Choco, Municipio Istmina, Río San Juan drainage, Quebrada Wegueral, 31May 2002; IMCN-PEC 1264 (1, 125.1 mm) Departamento Valle del Cauca, Municipio Buenaventura, Puerto Pizariorío Río San Juan drainage, Quebrada Dopurma, 7 May 2002; IMCN-PEC 1430 (2, 74.1-128.4 mm) Departamento Choco, Municipio Istmina, Río San Juan drainage, Quebrada Patecucho, 23 Nov. 2002; IMCN-PEC 1445 (2, 98.5-111.9 mm) Departamento Choco, Municipio Istmina, Río San Juan drainage, Quebrada Equix, 23 Nov. 2002; IMCN-PEC 1567 (1, 121.5 mm) Departamento Valle del Cauca, Municipio Buenaventura, Río San Juan drainage, Quebrada Peinomona, 12 Dec 2002; IMCN-PEC 1600 69.5-125.7 mm) Departamento del Choco, Municipio Istmina, Río San Juan drainage, Quebrada Llenagu, 17 Jan. 2003; IMCN-PEC 1707 (1,112.9 mm) Departamento Valle del Cauca, Municipio Buenaventura, Río San Juan drainage, Quebrada Dopurma, 6 Apr. 2002; IMCN-PEC 2008 (1, 97.0 mm) Departamento del Choco, Municipio Istmina, Río San Juan drainage, Quebrada Teteral, 31 May 2003; IMCN-PEC 2009 Río San Juan drainage, Quebrada Wegueral 31 May 2003; IMCN-PEC 2025 (158.4 mm) Departamento Choco, Municipio Istmina, Río San Juan drainage, Quebrada Nalde, 31 Mar 2003; IMCN-PEC 2095 (1, 126.4 mm) Departamento Valle del Cauca; IMCN-PEC 3943 (1, 112.0 mm) Departamento Valle del Cauca, Municipio Buenaventura, Río Dagua drainage, Quebrada La Conferencia, San Cipriano, 7 Jan. 2004; IMCN-PEC 4063 (1, 111.8 mm) Departamento Valle del Cauca, Municipio Buenaventura, Río Dagua drainage, Quebrada La Conferencia, 4 Apr. 2006; CIUA 0227 (4, 116.5-146.9 mm) Departamento Antioquía, Cienega Tumarado, Turbo-Atrato basin; IAvHP 06633 (1, 100.8 mm) Departamento del Choco, Municipio Yuto, Doña Josefa,; IAvHP 06967 (1, 104.3 mm) Atrato; IAvHP 06970 (1, 118.9 mm) Departamento del Choco, Municipio Yuto, Atrato River Basin; IAvHP 07323 (1, 136.7 mm) Atrato; IAvHP 07324 (1, 137.1 mm) Departamento del Choco, Atrato; IAvHP 07325 (1, 128.1 mm) Departamento del Choco, Atrato; IAvHP 07326 (1, 122.4 mm) Departamento del Choco, Atrato; IAvHP 07327 (9, 69.1–123.1 mm) Departamento del Choco, Atrato; IAvHP 11127 (1, 124.7 mm) Departamento del Choco, Municipio Yuto, Río Atrato, , 8.283333°, -76.966667°; IavHP 06969 (1, 94.4 mm) Departamento del Choco, Municipio Yuto, Río Atrato, 5.516667°, -76.616667°; ICNMHN 01632 (2, 119.0–129.4) Departamento del Choco, Río Atrato alrededor

de Paloblanco; ANSP 71709 holotype of *A. baudensis* (1, 187.2 mm) Departamento del Choco, Pacific slope, alto río Baudó 3000 ft; FMNH 58339 holotype of *A. melas* (1, 73.2 mm) Departamento del Choco, Municipio Condoto; GCRL 15276 (2, 102.4–117.6 mm) Departamento del Choco, Atrato River Basin; **Panamá:** FMNH 8942 holotype of *A. spinosus* (1, 171.3 mm), Panamá Province, Río Calobre, tributary of Río Bayano; INHS 36094 (2, 69.9–113.3 mm), Darien Province, Río Iglesia, Golfo de San Miguel, Pacific drainage, 08.423056°, -078.001389° (first river basin east from Colombia), Tuira River Basin, 28 Jan. 1995; STRI 1712 (3, 53.7–101.7 mm), same data as INHS 36094; USNM 78339 (1, 179.0 mm), Darien Province, Mouth of río Yape; ***Ancistrus chagresi:*** **Panamá,** Panamá Province**:** ANSP 151084 (1, 107.2 mm), last bridge before Arenosa, road from IAH to Arenosa; road intersect IAH about 5.5 km W of La Chorrera; AUM 32114 (11, 50.5–90.6 mm), Caribbean drainage, Río Chagres/Río Frijoles, pipeline road at km 4.6, Colón, 9.15232 -079.73480, 8 Jan. 2001; FMNH 29238 (1, 158.2 mm), Río Chorrera, Chorrera; FMNH 29240 (1, 158.0 mm), Largatera Creek; FMNH 29248 (1, 156.4 mm), Río Trinidad, Hydro Station; FNNH 29252 (1, 170.7 mm), Río Chagres, Alhajuela, 21 Feb. 1911; FNNH 29253 (3, 109.4–127.4 mm), Río Frijoles, Frijoles (Caribbean drainage)14 Mar 1911; FNNH 29256 (1, 157.2 mm), French Diversion, New Gatun, Canal Zone; FMNH 84606 (1, 100 mm), Parque Nacional Soberania, Río Frijolito, Chagres Basin, pipeline road, 20 Jun 1975; STRI 1706 (1, 51.9 mm), Río Frijoles, Río Chagres drainage (Caribbean), pipeline road, 9.164722N, -79.754444W; STRI 1713 (1, 73.9 mm), Río Bayano drainage, Río Ipeti, 08.97944°, -078.50556°; STRI 1717 (2, 55.1-60.0 mm), Río Caimito, site 1, 08.85000°, -079.88333°; STRI 6270 (2 55.3–71.6 mm), Río Agua Salud (pipeline road), 09.20111°, -079.78472°; UF 144728 (3, 112.5-135.1 mm), Río Frijoles on pipeline road near Gamboa, Caribbean drainage; ***Ancistrus clementinae*****, Ecuador**: AUM uncataloged (1, 56 mm), El Oro Province, Río Santa Rosa, El Recreo, -03.564139°, -079.942306° 9 Jul 2008; ***Ancistrus falconensis*** and ***Ancistrus gymnorhynchus*****:** see Taphorn et al (2010); ***Ancistrus martini*****: Venezuela:** AUM 22134 (1), Zulia State, Caño El Padre, on rd from Hwy 2 to town of km 35, Río Onia/Escalante drainage, 8.76161°, -071.76314°, 19 Dec 1999; AUM 22183 (1, 64.6 mm), Zulia State, Maracaibo/Catatumbo River drainage, Caño, N of Hwy 6 bridge near Tachira—Zulia state line on small road that crosses creek, 8.5025°, -072.34361°, 20 Dec 1999; FMNH 41999 (1, 60.3 mm), Zulia State, Río Cogollo drainage, Sierra Perijá, Maracaibo Basin, Mar 1920; INHS 35367 (3, 48.4–73.2 mm), Zulia State, Caño El Padre, on road from Hwy 2 to town of km 35, Caño Taguara/Catatumbo River/ Lake Maracaibo drainage, 9.28944°, -072.54694°, 2 Feb. 1995; INHS 59862 (1), Mérida State, Río Escalante, Hwy 1 bridge, 7 Jan. 1991; INHS 59879 (9), Mérida State, trib. to Río Gavilán, 3 km E Capazón, 08.82778°, -071.42667°, 6 Jan. 1991; INHS 59958 (2), Táchira State, Caño Calichito, 2 km E Caño Hondo, 7 Jan. 1991; INHS 60004 (2, 60.9-64.6 mm), Trujillo State, Flor de Patria, Quebrada Catalina Maracaibo/Motatán River drainage, 5 Jan. 1991; INHS 60351 (2), Mérida state, Río Muyapa, 4.5 km S Nueva Bolivia, on Hwy. 1, Río Torondoy drainage, 6 Jan. 1991; MBLUZ 3428 (1, 66.7 mm), Trujillo state, Qbda.Vichi, Maracaibo Basin; MBLUZ 582 (2, 57.0–63.4 mm), Zulia state, Maracaibo Basin, Escalante River drainage; MBLUZ 830 (1, 60.3 mm), Zulia state, Maracaibo Basin, upper Zulia River drainage; MCNG 24816 (5, 52.2–62.0 mm), Zulia state, south of Lake Maracaibo; MCNG 24969 (1, 46.2 mm), Zulia state, Caño Kanticory, Maracaibo Basin; MCNG 25097 (2, 51.1-81.7 mm), Zulia state, Catatumbo River drainage, Maracaibo Basin; MCNG 32339 (5, 50.7–57.8 mm), Zulia state, Catatumbo River drainage, Maracaibo Basin; MCNG 33544 (2, 52.2–54.1 mm), Zulia state, Tukuko River drainage, Maracaibo Basin; USNM 120094 (1, 79.1 mm), Zulia state, Catatumbo River drainage, Maracaibo Basin; MCNG 25079 (1, 44.5 mm), western Falcón state, Las Palmas; MCNG 4604 (3, 60.0-67.1 mm), Zulia state, Limón/Guasare river drainage, Maracaibo Basin; MCNG 4629 (4, 45.8-63.2 mm), Zulia state, Limón/ Guasare river drainage, Maracaibo Basin; USNM 121064 holotype of *A. triradiatus martini* (1, 82 mm), Zulia state, Catatumbo River drainage, Maracaibo Basin; USNM 121066, holotype of *A. brevifillis bodenhameri* (1, 59.4 mm), Motatán River drainage, Maracaibo Basin; USNM 121067 paratypes of *A. brevifillis bodenhameri* (2, 62.1–63.2 mm), Motatán River drainage, Maracaibo Basin; **Colombia:** IAvHP 000222 (1, 49.2 mm), Departamento Guajira, Arroyo Tabaco, Rancherias; IAvHP 03088 (1, 83.1 mm), Departamento Norte de Santander, Municipio San Calixto/Río Pamplonita (tributary of río Zulia), Maracaibo Basin, 08.30°, -072.44°; IavHP 09816 (1, 44.0 mm), Departamento Norte de Santander, vereda Vijagual, middle drainage of Catatumbo River Maracaibo Basin; ICNMHN 17648 (3, 55.5–76.8 mm), Departamento Norte de Santander, Cúcuta, township El Carmen de Tonchalá, río Zulia drainage, about 500 masl, 17 Dec 2009; MCNG 33550 (1, 51.0 mm), Departamento Norte de Santander. Pamplonita/Zulia River drainage, Maracaibo Basin; MPUJ 2503 (2, 102.2–110.8 mm), Departamento Norte de Santander, Maicao, río Carraipia, near aquaduct 11.54694°, -072.90806, 15 Apr 2006.

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