

Review of the Andean armored catfishes of the genus *Dolichancistrus* Isbrücker (Siluriformes: Loricariidae)

Gustavo A. Ballen¹ and Richard P. Vari²

The loricariid catfish genus *Dolichancistrus* is reviewed and four species recognized. Species of *Dolichancistrus* are distinguished from each other by the degree of development of the pectoral-fin spine, the form of the distal margin of the pelvic fin, the relative size and form of the cheek plates, the pattern of odontodes along the margin of the snout, the presence versus absence of a buccal papilla at the premaxillary symphysis, and the relative lengths of the anal- versus pelvic-spines. *Dolichancistrus atratoensis* is known from the río Atrato system and the río Cubarradó on the Pacific versant of Colombia; *D. carnegiei* occurs in the eastern río Magdalena basin in the departments of Boyacá and Santander, Colombia; *D. cobrensis* inhabits southern tributaries of the Lago Maracaibo basin in Colombia and Venezuela along with some highland rivers of the Cordillera de Mérida in Venezuela draining into the río Orinoco system; and *D. fuesslii* is known from the Andean piedmont portions of the río Meta basin in the western río Orinoco system. *Pseudancistrus pediculatus* is considered a junior synonym of *Ancistrus fuesslii*. *Chaetostomus setosus* previously assigned to *Dolichancistrus*, was found to lack features characteristic of its putative congeners and is rather more closely related to other members of *Chaetostoma* group. Consequently, the species is herein considered as *incertae sedis* within that group. *Dolichancistrus* is diagnosed, a key is provided to the members of the genus, and diagnoses and redescrptions are provided for all of the recognized species.

Se presenta una revisión del género *Dolichancistrus* y se reconocen cuatro especies válidas. Las especies de *Dolichancistrus* se distinguen entre sí a partir del grado de desarrollo de la espina pectoral, la forma del margen distal de la aleta pélvica, el tamaño relativo y la forma de las placas operculares, el patrón de odontoides a lo largo del margen del hocico, la presencia versus ausencia de papila bucal en la sínfisis de las premaxilas, y las longitudes relativas de las espinas anal y pélvicas. *Dolichancistrus atratoensis* es conocido del sistema del río Atrato y del río Cubarradó sobre la vertiente Pacífico de Colombia; *D. carnegiei* se encuentra en la vertiente Oriental de la cuenca del río Magdalena en los departamentos de Boyacá y Santander, Colombia; *D. cobrensis* habita los tributarios sureños de la cuenca del Lago Maracaibo en Colombia y Venezuela así como en algunos ríos de alta montaña de la Cordillera de Mérida en Venezuela drenando hacia el sistema del río Orinoco; y *D. fuesslii* es conocido de porciones pedimontanas Andinas de la cuenca del río Meta en la región occidental del sistema del río Orinoco. *Pseudancistrus pediculatus* es considerado un sinónimo junior de *Ancistrus fuesslii*. *Chaetostomus setosus*, una especie previamente considerada dentro del género *Dolichancistrus*, carece de los caracteres diagnósticos de sus congéneres putativos y es considerada como más cercanamente relacionada con otros miembros del grupo *Chaetostoma*. Consecuentemente, esta especie es considerada como *incertae sedis* dentro del grupo *Chaetostoma*. *Dolichancistrus* es diagnosticado, y se presenta una clave para sus especies, así como diagnosis y redescrpciones para todas las especies reconocidas actualmente dentro del género.

Key words: Andes, *Chaetostoma* group, *Chaetostomus setosus*, Northwestern South America.

Introduction

Armored catfishes of the loricariid genus *Dolichancistrus* Isbrücker are moderate-sized species dwelling in Andean piedmont and mid-elevation river systems of central and northern Colombia and northwestern Venezuela. The first-named species eventually assigned to

the genus was described by Boulenger (1887) as *Chaetostomus setosus* based on two specimens from an unspecified location in the Andes of Colombia. Steindachner (1911) subsequently proposed *Ancistrus fuesslii* from eastern Colombia. Soon thereafter Eigenmann (1916, 1917) described *Pseudancistrus carnegiei* from the río Magdalena system and *P. pediculatus* from the upper río Meta system

¹Universidad Nacional de Colombia, Grupo Cladística Profunda y Biogeografía Histórica, Instituto de Ciencias Naturales, Apartado Aéreo 7495, Bogotá, Colombia. gaballench@gmail.com; gaballench@unal.edu.co

²National Museum of Natural History, Division of Fishes, Department of Vertebrate Zoology, MRC-159, PO Box 37012, Smithsonian Institution, Washington, D.C. 20013-7012. varir@si.edu

in eastern Colombia. Schultz (1944) continued the use of *Pseudancistrus* Bleeker for species now in *Dolichancistrus* with his description of a new subspecies, *Pseudancistrus pediculatus cobrensis*, from the río Cobre, a southwestern tributary of the Lago Maracaibo system. That pattern of generic assignment was continued by Dahl (1960) who described *P. atratoensis* from the río Atrato in northwestern Colombia.

Dolichancistrus was proposed by Isbrücker (1980) in his catalogue of the species of the Loricariidae. In that compendium, Isbrücker assigned three species, *Pseudancistrus atratoensis*, *P. cobrensis*, and *P. pediculatus* to *Dolichancistrus*, with *P. pediculatus* as the type species. In a subsequent summary listing of loricariid species, Isbrücker (2001) expanded *Dolichancistrus* to encompass *Ancistrus fuesslii*, *Chaetostomus setosus*, and *Pseudancistrus carnegiei*, all previously assigned by Isbrücker (1980) to *Lasiancistrus* Regan. Isbrücker's actions were within the context of broad taxonomic summaries across the Loricariidae rather than derived from revisionary and/or phylogenetic studies focused on *Dolichancistrus*. Consequently, he neither delved into the question of the definable species in *Dolichancistrus*, nor analyzed their distinguishing features and geographic distributions. Indeed, given the limited available samples of *Dolichancistrus* it is unlikely that Isbrücker examined material of several nominal species. Summaries by Fisch-Muller (2003) and Ferraris (2007) followed Isbrücker (2001) and recognized *D. atratoensis*, *D. carnegiei*, *D. cobrensis*, *D. fuesslii*, *D. pediculatus*, and *D. setosus* as valid.

Multiple impediments complicated a resolution of the species-level questions in *Dolichancistrus*. Species were typically described from a limited type series, in one case a unique holotype and in another instance from two syntypes with inexact type locality information. Diagnoses in the original descriptions of the species assigned to *Dolichancistrus* were either lacking or brief and often uninformative and the features purported to delimit the genus were not evaluated across all nominal species. In order to resolve these issues, we examined material including type series of all nominal species of *Dolichancistrus* across the generic range. We herein diagnose and redescribe *Dolichancistrus*, evaluate the recognizable species in the genus and redescribe each of them.

Material and Methods

Counts and measurements follow Armbruster (2003) and institutional acronyms for examined samples are as follows: Auburn University Museum, Auburn (AUM), Academy of Natural Sciences of Philadelphia, Philadelphia (ANSP), Natural History Museum, London (BMNH), California Academy of Sciences, San Francisco (CAS), Private Collection Carlos Ardila Rodríguez's, Barranquilla (CAR), Colección de Ictiología de la Universidad de Antioquia, Medellín (CIUA), Colección de Peces de la Universidad

Católica de Oriente, Rionegro (CP-UCO), Colección de Zoología de la Universidad del Tolima, Tolima (CZUT-IC), Field Museum of Natural History, Chicago (FMNH), Instituto Alexander von Humboldt, Villa de Leyva (IAvH-P), Instituto de Ciencias Naturales, Bogotá (ICNMHN), Indiana University (IU, collections now largely at CAS), Instituto Nacional de Pesquisas da Amazônia, Manaus (INPA), Museo de Biología de la Universidad Central de Venezuela, Caracas (MBUCV-V), Museo de Ciencias Naturales de UNELLEZ, Guanare (MCNG), Museo de Historia Natural de La Salle, Bogotá (MLS), Muséum national d'Histoire Naturelle, Paris (MNHN), Museo de la Universidad de San Marcos, Lima (MUSM), Naturhistorisches Museum, Wien (NMW), National Museum of Natural History, Smithsonian Institution, Washington (USNM), and Zoologisch Museum, Universiteit van Amsterdam, Amsterdam (ZMA). Abbreviations in the text are c&s [cleared and stained specimens prepared following Taylor & van Dyke (1985) with modifications], masl (elevation in meters above sea level) and SL (standard length). In the lists of material examined, the museum acronym and catalogue number are followed by the number of specimens in the lot with the parenthetical information indicating the number of specimens from which counts and measurements were taken (when different than the total number of specimens) and the range of their standard lengths. This is followed by locality information clustered to the degree possible by geographic proximity.

Although the species of *Dolichancistrus* differ from each other in various features, they share very similar overall external morphologies of the head, body and unpaired fins. In light of that overall uniformity, we provide a general description for all members of the genus, with individual species accounts focusing on details of the head, body, pectoral fin, pelvic fin, odontodes, and pigmentation that differ among species with these data complemented by species-specific supplementary information. Dorsal-fin ray formula includes the dorsal-fin anterior spinelet as an unbranched fin ray. Specimens displaying secondary sexual dimorphism (primarily in the condition of the genital papilla) are reported as mature. Osteological nomenclature follows Geerinckx & Adriaens (2006) and Geerinckx *et al.* (2007) with the exception of the use of cheek odontodes rather than cheek spines (*e.g.*, Armbruster, 2008) in order to be consistent with the histology of these structures. In keeping with the general practice in descriptions of loricariids (*e.g.*, Lujan *et al.*, 2009), we use the term spine for the leading element of the anal, pectoral, and pelvic fins, the second unbranched ray of the dorsal fin, and the ventralmost and dorsalmost unbranched rays of the caudal fin. The concept of *Chaetostoma* Tschudi follows Armbruster (2004a), which is the only published phylogenetic framework for the genus. *Chaetostoma* in that sense differs from traditional concept of the genus (*e.g.*, Provenzano & Milani, 2006) both in diagnostic features and included species.

***Dolichancistrus* Isbrücker, 1980**

Dolichancistrus Isbrücker, 1980: 47 [type species: *Pseudancistrus pediculatus* Eigenmann, 1918; herein subjective synonym of *Ancistrus fuesslii* Steindachner, 1911. Type by original designation].

Diagnosis. *Dolichancistrus* is a member of the *Chaetostoma* group (*sensu* Armbruster 2004a, 2008) differentiated in that group from *Leptoancistrus* Meek & Hildebrand by the presence of the adipose and anal fins (*vs.* the absence of both fins); from *Cordylancistrus* and *Chaetostoma* (*sensu* Armbruster, 2004a) by the presence of pectoral-fin spines in mature males longer than those in adult females and immatures of both sexes (*vs.* the pectoral spines of equal length in both sexes); and from the species of *Chaetostoma* except for *C. platyrhynchus* (Fowler) in having a plated snout (*vs.* naked). *Dolichancistrus* differs from *Chaetostoma platyrhynchus* in having the hypertrophied cheek odontodes evertible to more than 90° (*vs.* evertible only to approximately 30-40°) and in bearing hypertrophied cheek odontodes that are distally recurved (*vs.* odontodes straight along their entire length). More broadly within the Ancistrini, *Dolichancistrus* is externally distinguishable from *Acanthicus* Spix & Agassiz, *Leporacanthicus* Isbrücker & Nijssen, *Megalancistrus* Isbrücker and *Pseudacanthicus* Bleeker in the absence of keeled plates on the lateral surface of the body (*vs.* the presence of keeled plates); from *Ancistrus* Kner, *Dekeyseria* Rapp Py-Daniel, *Lasiancistrus* Regan, *Lithoxus* Eigenmann, *Neblichthys* Ferraris, Isbrücker & Nijssen and *Pseudolithoxus* Isbrücker & Nijssen in possessing five series of plates on the caudal peduncle (*vs.* three series of plates on the caudal peduncle); from *Baryancistrus* Rapp Py-Daniel, *Parancistrus* Bleeker, and *Spectracanthicus* Nijssen & Isbrücker by having the dorsal-fin membrane on the posteriormost dorsal-fin ray extending along the dorsal margin of the body for only a short distance (*vs.* an enlarged portion of the membrane extending from the fin posteriorly to the preadipose plate); from *Exastillithoxus* Isbrücker & Nijssen by the absence of fimbriae on the margin of the mouth (*vs.* with lips bearing fimbriae); from *Hopliancistrus* Isbrücker & Nijssen by having long cheek odontodes that are straight for most of their length and recurve only distally (*vs.* short cheek odontodes which are strongly recurved from the base to the tip); from *Hypancistrus* Isbrücker & Nijssen and *Micracanthicus* Lujan & Armbruster by having the teeth on the dentary and premaxilla of approximately the same length (*vs.* dentary teeth longer than those on the premaxilla); from *Panaque* Eigenmann & Eigenmann by the presence of elongate, distally-recurved, and slender-cusped teeth on the jaws (*vs.* strong, spoon-shaped teeth at least in adults) and premaxillae positioned in an approximately straight line (*vs.* an angle between the premaxillae about 30°); from *Paulasquama* Armbruster & Taphorn by having the plates on the snout and the dorsal series of lateral body plates well developed (*vs.* weakly developed) and in having the pectoral-

fin spine always reaching at least to the insertion of the pelvic fin at least in males (*vs.* never reaching the pelvic insertion); and from *Soromonichthys* Lujan & Armbruster in bearing plates over all of the snout (*vs.* snout without plates along on its margins and along the midline). Notwithstanding the uncertainty about the diagnosability of *Hemiancistrus*, *Peckoltia*, and *Pseudancistrus* (Armbruster, 2004b, 2008), *Dolichancistrus* is separable from those genera as currently recognized in having the medial hypertrophied cheek odontodes thicker than the outer odontodes (*vs.* all the odontodes equally thick).

Description. Medium-sized loricariids, with largest examined specimen 153.7 mm SL (a male of *Dolichancistrus carnegiei*). Head and body strongly depressed and moderately wide. Lateral profile of anterior portion of head gently convex from tip of snout to vertical through posterior nares, then nearly straight to dorsal-fin insertion. Dorsal profile of body straight to very slightly posteroventrally angled from terminus of dorsal-fin base to insertion of dorsal caudal-fin spine. Ventral profile of head and body straight to very slightly convex to insertion of ventral caudal-fin spine.

Supraorbital bony ridge absent, with interorbital area ranging transversely from slightly convex to flat. Ridge of hypertrophied odontodes present in adults in region from anterior portion of orbit to anteroventral portion of nares; degree of development of ridge interspecifically and ontogenetically variable. Medial region from tip of snout to nares with distinct hypertrophied odontodes; odontodes usually more obvious in mature males but variably developed interspecifically. Profile of head smoothly rounded anteriorly in dorsal view other than for odontodes extending in adults along anterior and lateral margins of snout. Hypertrophied odontodes along lateral margin of snout extending posteriorly for variable distances, but never reaching plates immediately anterior to cheek plates.

Cheek with two to ten extremely hypertrophied odontodes supported by skin-covered, bony ossicles (*sensu* Geerinckx & Adriaens, 2006) plus several shorter albeit lengthened odontodes supported by outer exposed cheek plates. Hypertrophied cheek odontodes distally recurved with largest fully developed odontode extending posterior of base of first or second branched pectoral-fin ray. Cheek plates in two series. Dorsal series with two large plates varying in orientation, shape, and size among species. Ventral series with three or four smaller plates usually either lacking odontodes or with odontodes mostly covered by thick skin. Frontal, infraorbital, nasal, opercle, compound pterotic, sphenotic, and parieto-supraoccipital bones supporting odontodes of various sizes. Opercular odontodes present on exposed portion of opercle, with odontodes along opercular margin frequently larger than those on exposed surface of opercle. Cheek, snout and pectoral-spine odontodes surrounded basally by fleshy collar and most often with small lateral papilla as in *Dekeyseria* (Sabaj *et al.*, 1999, fig. 4b).

Fleshy papillae present when odontodes not fully developed. Odontodes on pectoral spine longer than associated papillae.

All series of lateral plates other than ventral series complete and extending from compound pterotic to posterior limit of caudal peduncle. Body plates without keels, but plates of ventral series with slight flexion midway along their vertical extent forming discrete angle along ventrolateral margin of caudal peduncle. Ventral plate series incomplete anteriorly with first plate located anterior of pelvic-fin insertion. Five series of plates present on caudal peduncle. Abdomen naked. First anal-fin pterygiophore not exposed to form plate-like structure.

Tip of adpressed dorsal fin extending posteriorly to terminate within area short of, to slightly beyond, anterior margin of preadipose plate. Dorsal-fin spine stiff basally, flexible distally and not extending beyond distal margin of fin. Margin of fin ranges from straight to slightly convex. Exposed margin of dorsal-fin spinelet moderately convex and variably covered by skin. Dorsal-fin spine lock functional. Adipose-fin spine of moderate length and bearing odontodes. Distal margin of caudal fin ranging from slightly emarginate to obliquely straight, with form variable both intraspecifically and ontogenetically. Ventral lobe of caudal fin longer than dorsal lobe. Anal-fin base short, usually about one-third length of second unbranched anal-fin ray. Tip of adpressed anal fin extending posteriorly to, or nearly to, vertical through adipose-fin origin. Length of pectoral-fin spine highly variable interspecifically but longer in mature males than mature females of all species. Tip of adpressed pectoral-fin spine falling between mid-length of adpressed pelvic-fin spine and point beyond tip of spine in mature males, and between insertion and tip of pelvic-fin spine in mature females. Pectoral-fin spine in mature males with hypertrophied odontodes extending along distal one-fifth to one-fourth of dorsolateral surface. Single series of odontodes present on dorsal surface of pectoral-fin spine in mature specimens regardless of sex or maturity. Distal margin of pectoral fin sigmoid when fully developed in adults, with margin convex medially and gently concave distally. Tip of adpressed pelvic fin reaching posteriorly to beyond anal-fin insertion. Dorsal surface of spine usually lacking odontodes. Form of posterior margin of pelvic fin interspecifically variable. Immature individuals of both sexes with distal fin margin straight whereas larger specimens with distal margin either W-shaped or convex.

Iris operculum present. Short, fleshy flap with round margin present between anterior and posterior nares. Lips wide and fairly thick. Upper lip with multiple series of papillae. Papillae proximate to mouth opening small and rounded and preceded anteriorly first by larger papillae and then by more elongate papillae along lip margin. Lower lip with medium-sized round papillae anteriorly and smaller ones posteriorly but with skin near posterior margin of lip nearly smooth. Lip border crenate. Maxillary barbel short, separate from lower lip distally but variably fused to lip basally in some specimens and extending up to one-half

distance to transverse line along posteriormost limit of lower lip. Median buccal papilla present posterior of symphysis of premaxillae in all but one species.

Jaws wide transversely. Dentaries meeting at variably oblique angle ranging from nearly straight line to distinct angle with variation apparently artifact of preservation. Anterior margin of premaxilla forming nearly straight line. Dentary larger than premaxilla. Peduncles of teeth fairly long, narrow and distally recurved. Cusps asymmetrically developed with lateral tooth cusp approximately one-half length of medial cusp. Dentary teeth 30-100 and premaxillary teeth 20-70; number of teeth on each ramus increasing ontogenetically.

Sexual dimorphism. Mature females have a greatly widened, pad-like genital papilla with some transverse flaps at the papillary opening. The aperture of the genital papilla in mature females is located proximate to, but separate from, the opening of the vent. Mature males have a distinctly-pointed genital papilla with a distal aperture. Mature males also typically demonstrate a greater degree of development of the odontodes along the margin of the snout and medial region of head from the tip of the snout to the nares, and in the area between the orbit and the nares. The pectoral-fin spines and distal odontodes on the spines are proportionally longer in mature males than in mature females. Males of all species achieve greater standard lengths than do conspecific females and also reach maturity at larger overall sizes.

Distribution. Species of *Dolichancistrus* are known from eastern tributaries of the río Atrato at elevations of 460 to 1380 masl, the río Cubarradó a small coastal drainage south of the Serranía de Baudó on the Pacific Ocean versant, the middle portions of the eastern río Magdalena basin along the Cordillera Oriental between approximately 500 and 2540 masl, western portions of the río Orinoco basin on the slopes and piedmont of the Cordillera Oriental from the Serranía de la Macarena to the río San Antonio in Venezuela at elevations of approximately 500 to 2500 masl and southeastern tributaries of the lago Maracaibo basin in Colombia and Venezuela. Samples with specific locality information indicate that all species are allopatrically distributed. A few samples with inexact locality data that include two species likely represent geographically complex series of specimens (see Remarks for *D. carnegiei*).

Generic placement of *Chaetostomus setosus*. *Chaetostomus setosus*, the first described species eventually assigned to *Dolichancistrus*, was proposed by Boulenger (1887: 349). This species was shifted to *Pseudancistrus* Bleeker by Eigenmann and Eigenmann (1890: 435), whereas Regan (1904: 3239) assigned it to the subgenus *Pseudancistrus* within *Ancistrus* Kner. Fowler (1942: 132) followed Eigenmann & Eigenmann (1890) in recognizing the species within *Pseudancistrus*. Isbrücker (1980: 46) first shifted the species to *Lasiancistrus* and

then to *Dolichancistrus* (2001: 27) without any comment; a practice continued by subsequent authors.

Isbrücker (1980: 47) identified one putative diagnostic feature for *Dolichancistrus*, “the possession of very long interopercular odontodes [= hypertrophied cheek odontodes], extending much beyond the head in the adult male” (comments in brackets ours). The two or more greatly hypertrophied and distally-recurved cheek odontodes reaching distinctly beyond the pectoral-spine origin in *D. atratoensis*, *D. carnegiei*, *D. cobrensis*, and *D. fuesslii*, as well as in *Leptoancistrus* likely represent the cited condition. Elongation of cheek odontodes in *Dolichancistrus* (exclusive of *Chaetostomus setosus*) and *Leptoancistrus* also occurs in some other ancistrin genera (e.g., *Acanthicus*, *Cordylancistrus*, *Hemiancistrus*, and *Panaque*), sometimes to a degree comparable to that in *Dolichancistrus* and *Leptoancistrus*. *Chaetostomus setosus*, conversely, has proportionally distinctly shorter, albeit hypertrophied, cheek odontodes that fall short of, or barely reach, the pectoral-fin spine origin.

Proportionally longer pectoral-fin spines of mature males relative to mature females and immature specimens of both sexes were also proposed as diagnostic for *Dolichancistrus* (Armbruster, 2004: 37). Such dimorphism does indeed occur in *Dolichancistrus atratoensis*, *D. carnegiei*, *D. cobrensis*, *D. fuesslii*, and species of *Leptoancistrus* but is absent in *Chaetostomus setosus*. Sexually dimorphic pectoral spines of this type are limited to *Leptoancistrus* and *Dolichancistrus* (other than for *Chaetostomus setosus*) in the Ancistrini and support the hypothesis of a sister-group relationship for *Dolichancistrus* plus *Leptoancistrus* but excluding *Chaetostomus setosus*.

Removal of *Chaetostomus setosus* from *Dolichancistrus* is appropriate based on the phylogenetic evidence that a more restricted *Dolichancistrus* is the sister group to *Leptoancistrus*. As a side benefit, this makes *Dolichancistrus* readily diagnosable externally. The question is then one of the appropriate generic placement of the species. *Chaetostomus setosus* shares a supraoccipital dermal ridge with components of both *Chaetostoma* (Salcedo, 2006) and *Cordylancistrus* (pers. obs.) but not *Dolichancistrus* and *Leptoancistrus*. This ridge is hypothesized as derived given its absence across the remainder of the *Chaetostoma* group indicating that the relationship of *Chaetostomus setosus* lies with components of *Chaetostoma* or *Cordylancistrus*. The absence of resolution about relationships within the *Chaetostoma* group complicates the assignment of *Chaetostomus setosus* to either *Chaetostoma* or *Cordylancistrus* in the sense of Provenzano & Milani (2006) in subsequent analyses (e.g., Armbruster, 2008) problematic. In light of those complications, we place *Chaetostomus setosus* as *incertae sedis* within the *Chaetostoma* group.

Type locality for *Chaetostomus setosus*. Although we exclude *Chaetostomus setosus* from *Dolichancistrus*, our investigations were informative as to the likely type region of the species. Boulenger (1887: 349) remarked that the types of *Chaetostomus setosus* were part of “a small collection of fishes made by F. A. Simons in Colombia (locality not mentioned).” According to Hilty & Brown (1986: 37), Simons collected birds in northeastern Colombia in the late 1870s apparently in the expeditions that yielded the types of *C. setosus*. Simons (1881) discussed his travels through the region around the Sierra Nevada de Santa Marta, the northern portions of the lower río Magdalena basin and other lowlands west of the Serranía del Perijá. Only two samples of *Chaetostomus setosus* with detailed locality information were located, both from the río Cesar basin, Departamento de Cesar, west of the Serranía del Perijá (CIUA 698, 4, 51.04–70.82 mm SL; ICNMHN 1158, 5, 27.39–72.30 mm SL). It is likely that the syntypes originated in that region.

Remarks. *Dolichancistrus* was purported to be externally distinguishable from other genera in having a pronounced sexual dimorphism in pectoral spine length with the spine of mature males extending beyond the tip of the pelvic fin spine *versus* the shorter pectoral-fin spine in mature conspecific females. Although dimorphism in pectoral-spine length is general across *Dolichancistrus*, only in *D. cobrensis* and *D. fuesslii* does the tip of the addressed pectoral-fin spine reach or extend beyond the tip of the addressed pelvic-fin spine.

Comparable sized conspecific mature males of all species of *Dolichancistrus* demonstrate striking variation in odontode development and it appears that males shed their hypertrophied snout odontodes seasonally. Armbruster (2004a: 41) noted that members of *Dolichancistrus* and *Leptoancistrus* often shed their hypertrophied cheek odontodes although the underlying cause and periodicity was not noted. Seasonal loss of cheek odontodes occurs elsewhere in the Loricariidae in *Panaque* (pers. obs.; J. W. Armbruster, pers. comm.), *Rineloricaria uracantha* (Moodie & Power, 1980: 144; *Loricaria uracantha* therein) and an apparent periodic shedding of cheek odontodes was observed in *Chaetostoma*, *Cordylancistrus* and *Leptoancistrus* (pers. obs.).

Key to species of *Dolichancistrus*

1. Buccal papilla absent at premaxillary symphysis; hypertrophied snout odontodes in mature males and females either restricted to anterolateral regions of snout margin, or weakly developed on narrow anterior region of snout in addition to anterolateral odontode patch present in some specimens *D. cobrensis*
- 1'. Buccal papilla present at premaxillary symphysis; hypertrophied snout odontodes in mature males extending along entire margin of snout and sometimes also onto medial region of head from tip of snout to nares 2

2. Anterior margin of adpressed posterior dorsal cheek plate medially contacting anterior margin of exposed portion of opercle; tip of adpressed pectoral-fin spine in mature males extending distinctly beyond tip of adpressed pelvic-fin spine and in mature females to tip of pelvic-fin spine *D. fuesslii*
- 2'. Anterior margin of adpressed posterior dorsal cheek plate not medially contacting anterior margin of exposed portion of opercle; tip of adpressed pectoral-fin spine in mature males extending to area between middle and tip of adpressed pelvic-fin spine and in mature females reaching to area between base and middle of pelvic-fin spine 3
3. Anterior dorsal cheek plate ventrally triangular and distinctly smaller than posterior cheek plate in lateral view; length of anal-fin spine less than or nearly equal to one-third length of pelvic-fin spine *D. atratoensis*
- 3'. Anterior dorsal cheek plate square and approximately as large as posterior cheek plate in lateral view; length of anal-fin spine nearly equaling or exceeding one-half length of pelvic-fin spine *D. carnegiei*

***Dolichancistrus atratoensis* (Dahl, 1960)**

Fig. 1

Pseudancistrus atratoensis Dahl, 1960: 455, figs. [Type locality: Colombia, Quebrada La Noche, tributary to upper río Atrato, approximate height above sea level 550 m].

Dolichancistrus atratoensis Isbrücker, 1980: 47 [shift to *Dolichancistrus*]. - Burgess, 1989: 434 [in listing of species of the Loricariidae]. - Isbrücker, 2001: 26 [in listing of species of the Loricariidae]. - Isbrücker, 2002: 29 [in listing of species of the Loricariidae]. - Fisch-Muller, 2003: 384 [in checklist of species of the Ancistrinae]. - Maldonado-Ocampo *et al.*, 2005: 153, map 143 [Andes of Colombia, upper río Atrato; summary data; common name]. - Maldonado-Ocampo *et al.* 2006: 149 [Colombia, río Atrato; misidentified in part]. - Ferraris, 2007: 235 [in checklist of catfishes]. - Maldonado-Ocampo *et al.*, 2008: 198 [Colombia].

Pseudancistrus atratoensis, Cala, 1981: 3 [type depository]. - Mojica & Castellanos-C, 2007: 84 [type repository; type locality erroneously cited as in Municipio Riosucio, Departamento de Antioquia, see Remarks].

Material examined. All collections from Colombia. CIUA 768, 1, 120.3 mm SL, Departamento de Antioquia, río Atrato drainage, Urroa, vereda Calles, Quebrada La Selva, 1365 masl. CIUA 769, 2, 92.9-111.6 mm SL, Departamento de Antioquia, río Atrato drainage, Urroa, vereda Calles, quebrada La Crespa, 1346 masl, 6°31'10"N, 76°17'05.1"W. CIUA 771, 1, 114.6 mm SL, Departamento de Antioquia, río Atrato drainage, Frontino, vereda Venados, río Venados, 824 masl, 6°32'22.5"N, 76°19'33.9"W. CIUA 772, 2, 51.0-70.0 mm SL, Departamento de Antioquia, río Atrato drainage, Frontino, vereda Venados, quebrada La Aguada, 1110 masl, 6°33'26.4"N 76°17'03.8"W. IAvH-P 6630, 1, 63.9 mm SL, Departamento de Chocó, Quibdó, río Tutunendo. ICNMFH 51, holotype, 81.0 mm

SL, male, Departamento de Chocó, Carmen de Atrato, río Atrato, quebrada La Noche, 500 masl. ICNMFH 46, paratypes, 42, 42.0-68.6 mm SL; erroneously cited as ICNMFH 48 by Maldonado-Ocampo *et al.* (2008), Departamento de Chocó, Carmen de Atrato, río Atrato, Quebradas La Noche and La 16. ICNMFH 74, paratype, 1, 61.1 mm SL, male, Departamento de Chocó, Carmen de Atrato, río Atrato, Quebradas La Noche and La 16. ICNMFH 3460, 1, 50.9 mm SL, Departamento de Chocó, Pacific Ocean versant, Purrichá, río Cubarradó, quebrada Purrichá.

Diagnosis. *Dolichancistrus atratoensis* is diagnosable from all congeners in having a unique form of the cheek plates in which the anterior plate is smaller than the posterior plate and has the form of a ventrally oriented triangle from a lateral view (*vs.* anterior and posterior cheek plates of nearly the same size and square or rectangular from a lateral view, respectively), in having the tip of the adpressed pectoral-fin spine in mature males falling within the area between the base and middle of the adpressed pelvic-fin spine (*vs.* reaching to the tip of the pelvic-fin spine in *D. carnegiei*, falling slightly short of, to extending somewhat beyond, the tip of the spine in *D. cobrensis*, and far surpassing the tip of the spine in *D. fuesslii*). *Dolichancistrus atratoensis* is additionally distinguished from *D. carnegiei* in the length of the anal-fin spine (one-third or less *vs.* one-half or more of the length of the pelvic-fin spine, respectively). *Dolichancistrus atratoensis* further differs from *D. cobrensis* in the condition of the buccal papilla within the oral cavity at the limit of the symphysis of the premaxillae (present *vs.* absent, respectively). *Dolichancistrus atratoensis* can also be differentiated from *D. fuesslii* in the form of the distal margin of the pelvic fin in mature males (either straight or approximately smoothly convex *vs.* W-shaped, respectively) and in the relationship of the posterior cheek plate with the exposed portion of the opercle (ossifications distinctly separated *vs.* the margin of the anteromedial corner of the posterior cheek plate in contact with the anterior margin of the exposed portion of the opercle, respectively).

Description. See description under generic account for features common to all species of *Dolichancistrus*. Largest examined specimen 120.3 mm SL. Morphometrics presented in Table 1. Dorsal-fin rays ii,8; anal-fin rays ii,3 or 4 [one malformed individual with ii,1]; caudal-fin rays i,14,i; pectoral-fin rays i,6; pelvic-fin rays i,5. Preadipose plates 1-2; median plates 22-25. Buccal papilla present within oral cavity at limit of symphysis of premaxillae. Enlarged odontodes variably present along entire anterior or anterolateral margins of snout (see Sexual dimorphism for comments on variation). Anterior margin of posterior cheek plate distinctly separated from anterior margin of exposed portion of opercle. Anterior cheek plate triangular, obliquely oriented, approximately one-half length of, and positioned largely ventrolateral to, posterior cheek plate. Hypertrophied cheek odontodes distally recurved. Distal margin of pelvic fin straight to convex. Spine of adpressed pectoral fin in mature males reaching posteriorly approximately midway along length of adpressed pelvic fin

and in mature females approximately to insertion of pelvic fin. Odontodes extending along distal one-half of pectoral-fin spine. Anal fin usually present, but highly reduced in the male and absent in the female of CIUA 772.

Coloration in alcohol. Overall ground coloration of head and body brownish on lateral and dorsal surfaces, lightly pigmented ventrally other than for upper lip. Body pigmentation pattern variable and ranging from unpatterned

to highly vermiculated and mottled, sometimes with unpigmented region on ventral portion of caudal peduncle. Variation in color pattern apparently not correlated with age, sex, or breeding condition. Largest examined individual with nearly uniform dark gray coloration over head and body. Dorsal fin with alternating dark and light areas along rays that form irregular, somewhat transverse bar-like pattern along length of fin. Spacing between dark areas variable, but usually of same expanse as width of dark regions. Membranes lack

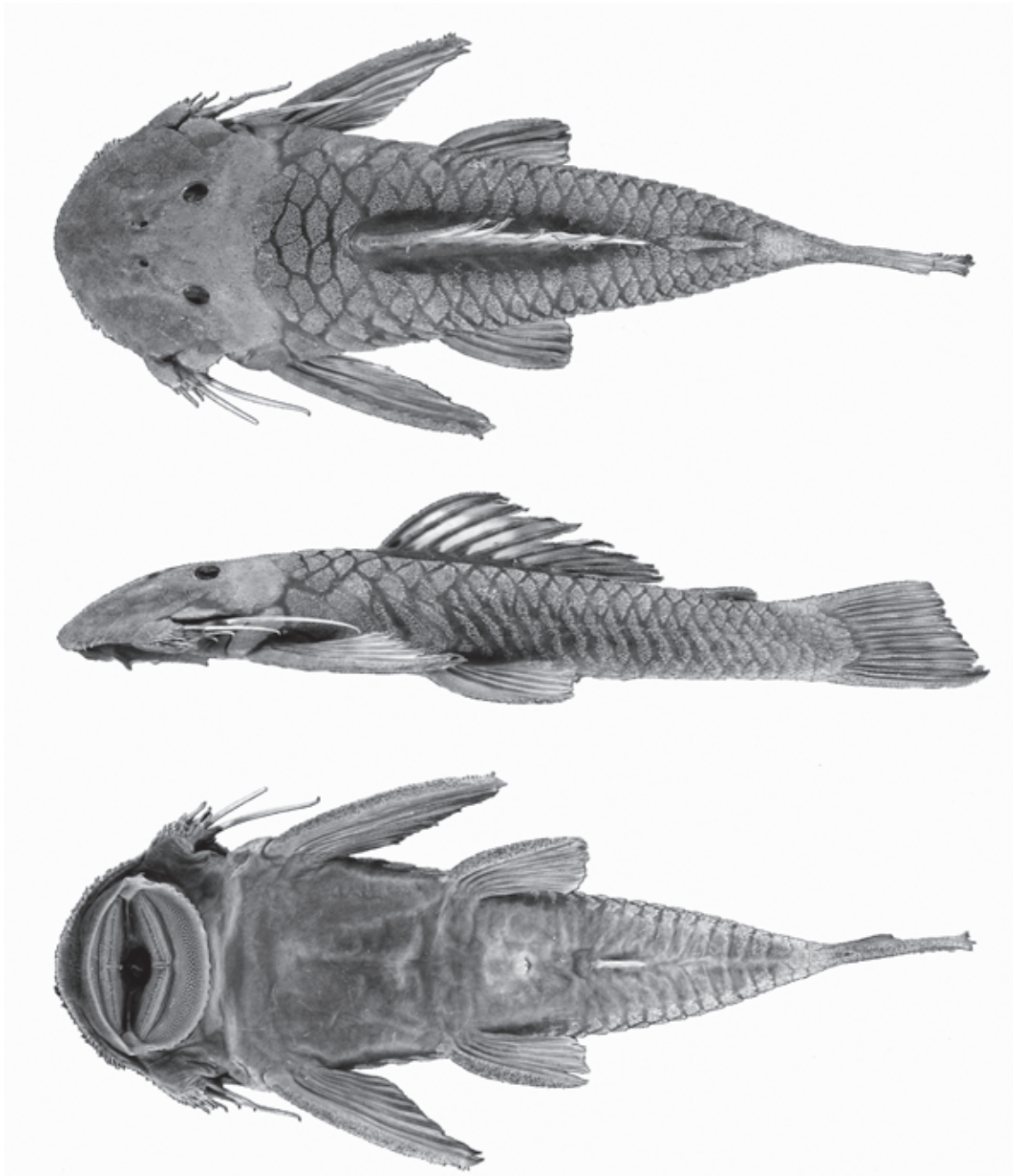


Fig. 1. *Dolichancistrus atratoensis*, CIUA 768, 120.3 mm SL. Colombia, Departamento de Antioquia, quebrada la Selva; dorsal, lateral and ventral views.

dark pigmentation. Anal fin with scattered chromatophores covering basal portion of fin rays, but with membranes unpigmented. Caudal fin with alternating dark and light areas along rays that form irregular transverse bar-like pattern across vertical extent of fin. Pectoral-fin spine with alternating dark and light regions on dorsal surface; ventral surface lacking dark pigmentation. Pectoral and pelvic fins with pattern of alternating transverse dark and light pigmentation on lateral rays, with medial rays and all of membranes unpigmented.

Sexual dimorphism. Mature males of *Dolichancistrus atratoensis* demonstrate greater degrees of development of the odontodes along the margin of the snout, the medial region of head from the tip of the snout to nares and in the area between the orbit and nares than do mature females. The pectoral-fin spine of mature males is proportionally longer than that of mature females.

Distribution. *Dolichancistrus atratoensis* is known from southeastern tributaries of the río Atrato in northern Colombia along with the río Cubarradó, a small Pacific versant system draining a portion of the southern slope of the Serranía de Baudó in western Colombia (Fig. 2).

Common name. Cacucho, Guacuco (Maldonado-Ocampo *et al.*, 2005: 153).

Remarks. Dahl (1960) identified the holotype of *Pseudancistrus atratoensis* as a female and the allotype (= paratype) as a male. Examination revealed that both are males with the holotype lacking hypertrophied odontodes despite having an obvious male genital papilla and the elongate pectoral spine characteristic of male congeners. Presumably Dahl's identification of the holotype as a female was based on the absence of hypertrophied odontodes in females of some ancintrin species. As noted above, these odontodes are seasonally absent in males of *Dolichancistrus*.

Dahl (1960: 455) reported the type locality of *Pseudancistrus atratoensis* as "quebrada La Noche, tributary to the upper Atrato, approximate height above sea level 550 m" and that the types were collected on "August 10th, 1959." In a compendium of ICNMHN fish types, Mojica & Castellanos-C (2007: 84), modified this to "Departamento de Antioquia, Riosucio, alto río Atrato, quebrada La Noche, vertiente occidental, Cordillera Occidental, altitud 550 m" thereby shifting the locality to a different department. ICNMHN catalog cards indicate Dahl

Table 1. Morphometric data for *Dolichancistrus atratoensis* (n = 14), *D. carnegiei* (n = 22), *D. cobrensis* (n = 27) and *D. fuesslii* (n = 41). Landmarks follow Armbruster (2003). Standard deviation designated as SD.

Measurement	<i>Dolichancistrus atratoensis</i>			<i>D. carnegiei</i>			<i>D. cobrensis</i>			<i>D. fuesslii</i>		
	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD
Standard Length	42.0 - 120.3	73.4	-	59.4 - 126.4	83.5	-	47.6 - 92.1	61.1	-	32.9 - 124.4	72.9	-
Predorsal Length	39.0 - 46.2	43.8	2.0	41.9 - 45.2	43.7	0.9	42.9 - 46.5	44.5	0.9	41.3 - 47.8	44.3	1.5
Head Length	28.8 - 37.0	33.5	2.2	31.4 - 34.0	32.7	0.7	30.7 - 35.0	32.9	1.2	31.9 - 36.2	33.7	1.1
Head-dorsal Length	8.3 - 12.9	10.8	1.4	7.8 - 12.5	10.2	1.3	9.7 - 12.9	11.7	0.8	9.1 - 12.3	10.3	0.7
Cleithral Width	29.3 - 34.8	32.6	1.6	31.3 - 34.3	32.8	0.8	30.2 - 33.7	31.9	0.9	31.4 - 35.7	33.1	1.0
Head-pectoral Length	26.6 - 34.1	30.3	2.1	27.3 - 31.9	29.7	1.2	27.6 - 31.8	29.6	1.2	28.4 - 34.2	30.9	1.3
Thorax Length	21.5 - 25.5	23.3	1.0	19.8 - 27.8	24.2	2.0	20.1 - 27.2	24.7	1.9	20.0 - 25.9	23.0	1.6
Pectoral spine Length	24.7 - 38.7	30.5	4.1	30.0 - 43.1	34.1	3.9	32.6 - 42.1	37.6	2.6	31.5 - 53.0	40.1	1.0
Abdominal Length	21.1 - 25.2	22.6	1.3	21.9 - 23.8	22.8	0.5	20.7 - 25.7	23.8	1.2	21.9 - 26.0	23.8	0.9
Pelvic spine Length	16.1 - 26.0	21.7	2.6	20.6 - 24.8	23.4	0.9	22.1 - 25.4	23.5	0.8	20.6 - 27.1	24.0	1.5
Postanal Length	24.2 - 31.7	27.7	2.5	25.4 - 30.7	29.0	1.5	25.2 - 28.5	26.8	0.8	25.3 - 30.5	28.0	1.1
Anal-fin spine Length	2.1 - 7.1	4.6	1.9	5.6 - 8.4	6.6	0.7	3.7 - 6.4	4.9	0.8	4.4 - 8.1	6.6	1.0
Dorsal-pectoral Distance	24.2 - 28.3	26.5	1.1	25.5 - 30.0	27.4	1.4	25.9 - 29.1	27.5	0.8	23.2 - 29.3	26.8	1.5
Dorsal-pelvic Distance	18.9 - 24.8	21.4	2.0	18.3 - 26.5	21.2	2.0	16.3 - 22.4	19.5	1.7	16.7 - 23.4	20.5	1.3
Dorsal-fin base Length	20.7 - 28.9	25.9	2.3	22.5 - 25.3	23.8	0.7	22.1 - 29.0	25.6	1.5	21.9 - 30.9	25.3	2.1
Dorsal-adipose Distance	14.6 - 17.8	16.3	0.9	17.0 - 21.3	19.1	1.1	14.3 - 18.6	16.6	1.2	15.6 - 22.2	18.0	1.7
Adipose spine Length	6.6 - 9.1	7.4	0.7	5.9 - 8.5	7.1	0.7	6.8 - 8.4	7.8	0.4	6.0 - 9.0	7.6	0.8
Dorsal adipose-caudal Distance	10.2 - 16.8	12.8	2.1	10.1 - 14.4	11.9	1.0	8.5 - 12.7	10.7	1.0	8.5 - 14.0	11.4	1.2
Caudal-peduncle Distance	9.9 - 13.1	11.5	1.0	10.2 - 13.1	11.1	0.7	9.3 - 11.5	10.5	0.6	9.0 - 11.5	10.4	0.6
Ventral Adipose-caudal Distance	16.3 - 21.0	18.7	1.4	16.1 - 9.9	18.3	1.2	16.2 - 18.6	17.8	0.5	15.4 - 19.4	17.1	0.9
Adipose-anal Distance	14.0 - 20.3	17.0	1.9	14.7 - 18.8	16.8	0.9	15.4 - 18.0	17.0	0.8	15.0 - 19.5	17.5	1.2
Dorsal-anal Distance	11.3 - 15.7	13.7	1.4	12.1 - 13.7	13.0	0.5	12.1 - 13.8	13.0	0.4	11.0 - 14.0	12.8	0.8
Pelvic-dorsal Distance	21.6 - 29.1	25.2	2.1	22.1 - 26.2	24.4	1.1	23.2 - 28.0	25.4	1.4	21.8 - 42.6	25.8	3.1
Head-eye Length	31.6 - 41.1	35.5	2.6	32.2 - 38.3	35.3	1.5	32.8 - 38.8	34.9	1.3	30.0 - 39.5	34.2	2.2
Orbit Diameter	10.9 - 18.0	14.1	2.1	9.3 - 17.3	13.4	1.9	12.1 - 17.3	14.0	1.5	12.1 - 16.3	14.5	1.3
Snout Length	59.8 - 70.2	65.9	2.6	65.5 - 69.9	67.4	1.5	59.7 - 70.6	65.0	2.3	63.1 - 69.6	66.8	1.5
Internares Width	16.3 - 21.3	18.4	1.6	16.4 - 19.4	18.3	0.8	16.8 - 21.7	18.4	1.2	13.2 - 23.4	18.4	2.2
Interorbital	38.6 - 48.0	43.2	3.3	38.8 - 48.0	43.8	2.2	38.3 - 46.7	42.6	2.2	40.2 - 48.4	43.0	1.6
Head Depth	61.4 - 72.6	67.5	3.1	64.4 - 71.9	67.8	2.2	61.0 - 73.7	66.2	3.4	60.8 - 69.5	65.3	2.3
Mouth Length	56.6 - 69.6	62.9	3.4	56.1 - 65.5	59.7	2.6	55.4 - 66.9	61.7	2.7	56.8 - 66.6	61.5	2.7
Mouth Width	68.5 - 82.4	75.9	4.1	79.8 - 88.2	85.1	2.7	70.8 - 85.4	78.4	3.4	74.4 - 88.8	80.6	4.0
Barbel Length	4.6 - 10.7	7.6	1.9	4.9 - 9.1	6.7	1.0	5.4 - 8.8	7.4	0.9	5.1 - 10.9	8.4	1.4
Dentary Tooth-cup Length	25.1 - 32.9	29.1	2.1	27.5 - 32.4	29.8	1.3	24.0 - 30.4	27.0	1.4	27.2 - 36.3	30.6	2.1
Premaxillary Tooth-cup Length	22.6 - 28.0	25.6	1.8	22.0 - 27.8	25.6	1.5	20.3 - 26.6	23.4	1.5	22.9 - 30.4	26.3	2.1

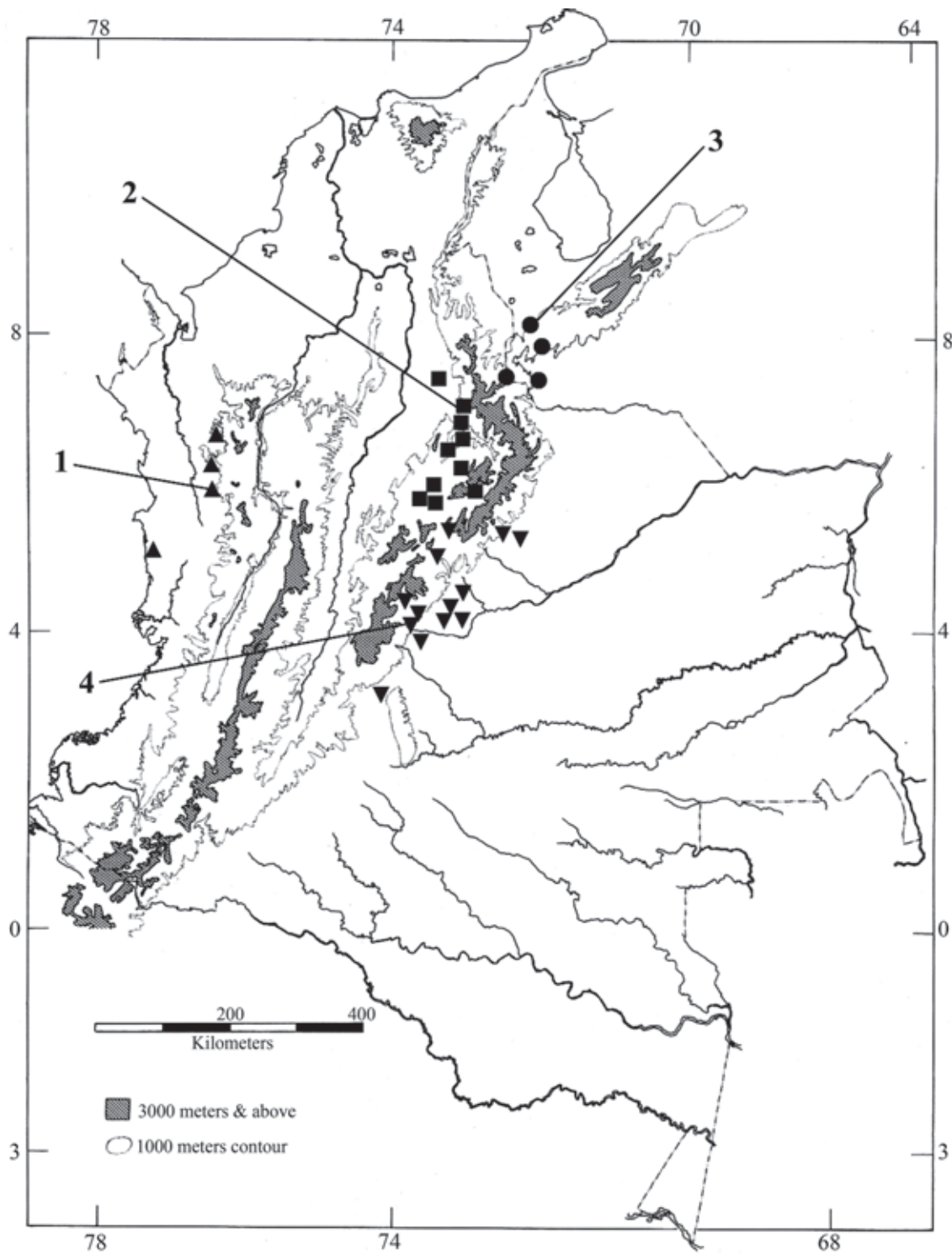


Fig. 2. Map of Colombia showing localities for the species of *Dolichancistrus*. Dotted contours represent 1000 masl isoclines and striped areas indicate regions above 3000 masl. Some symbols represent more than one locality and/or lot of specimens. *Dolichancistrus atratoensis* (triangles; type locality = 1); *D. carnegiei* (squares; type locality = 2); *D. cobrensis* (circles; type locality = 3); *D. fuesslii* (inverted triangles; type locality = 4). Base map provided by John D. Lynch.

collected at Quibdó in the Departamento de Chocó on 5 and 14 August, at El Carmen de Atrato on August 8, and quebrada La Noche on 7-10 August. All these localities are distant from Riosucio, which is clearly an incorrect emendation. One of the two lots (IAvH-P 6629) cited as *Dolichancistrus atratoensis* by Maldonado-Ocampo *et al.* (2006) is instead a species of *Leptoancistrus*.

***Dolichancistrus carnegiei* (Eigenmann, 1916)**

Fig. 3

Pseudancistrus carnegiei Eigenmann, 1916: 85 [type locality: Colombia, Santander, río San Gil = río Fonce, see under Remarks]. - Eigenmann, 1922: 79, fig., 18, pl., 10, fig. 3 [Colombia, río Guaduas, río San Gil, quebrada de Honda, quebrada de la Pelada, río Baipé]. - Henn, 1928: 85 [type depository]. - Fowler, 1942: 132 [Colombia, río Magdalena and río Guaduas]. - Gosline, 1945: 90 [in checklist of Neotropical catfishes]. - Miles, 1947: 108 [Colombia, río Magdalena, Santander and Boyacá]. - Dahl, 1971: 85, fig. [Colombia, Santander and Boyacá in rivers and quebradas of Cordillera Oriental; maximum size; economic importance]. - Ibarra & Stewart, 1987: 70 [type depository].

Lasiancistrus carnegiei Isbrücker, 1980: 43 [shift to *Lasiancistrus*].

Dolichancistrus carnegiei Isbrücker, 2001: 26 [shift to *Dolichancistrus*]. - Fisch-Muller, 2003: 384 [in checklist of species of the Ancistrinae]. - Maldonado-Ocampo *et al.*, 2005: 153, map 144 [Andes of Colombia, río San Gil; summary data]. - Mojica *et al.*, 2006: 33 [Colombia, middle río Magdalena]. - Ferraris, 2007: 235 [in checklist of catfishes]. - Maldonado-Ocampo *et al.*, 2008: 198 [in checklist of fishes of Colombia].

Material examined. All collections from Colombia. CAS 56749 (formerly IU 13926), 2, 89.0-126.4 mm SL, Departamento de Boyacá, río Baipe. CAS 77345 (formerly IU 13662), 4, paratypes, 14.7-23.4 mm SL, Departamento de Santander, Socorro, río Honda (= quebrada Honda). FMNH 58559 (formerly CM 7579a), 1, 24.4 mm SL, Departamento de Santander, quebrada La Pelada (location undetermined). IAvH-P 3936, 3, 38.6-123.7 mm SL, Departamento de Boyacá, río Magdalena drainage, without exact locality data. IAvH-P 3937, 1, 109.1 mm SL, Departamento de Boyacá, Villa de Leyva, río Suárez. IAvH-P 3938, 1, 44.8 mm SL, Departamento de Boyacá, Villa de Leyva, río Suárez. IAvH-P 4329, 2, 43.1-44.3 mm SL, Departamento de Santander, Floridablanca, río Lebrija, río Frío. IAvH-P 4330, 14, 29.3-49.7 mm SL, Departamento de Santander, Piedecuesta, río Chicamocha, río Manco. IAvH-P 4332, 25, 22.0-92.5 mm SL, Departamento de Santander, Piedecuesta, río Chicamocha, río Manco. IAvH-P 5263, 21, 31.6-152.6 mm SL, Departamento de Boyacá, Iguaque, río Iguaque, Pozo de La Vieja. IAvH-P 8563, 4, 37.6-104.8 mm SL, Departamento de Boyacá, Santa Sofía, río Moniquirá at Paso del Ángel. IAvH-P 10733, 6, 61.2-101.0 mm SL, Departamento de Boyacá, río Cane above Pozo de La Vieja. IAvH-P 10734, 33, 27.4-152.1 mm SL, Departamento de Boyacá, río Cane-Iguaque, valle Escondido. IAvH-P 11382, 2,

73.8-93.0 mm SL, Departamento de Boyacá, río Magdalena drainage, without exact locality data. ICNMHN 591, 16, 35.5-96.3 mm SL, Departamento de Santander, Simacota, quebrada Santa Rosa, tributary of río Suárez. ICNMHN 1822, 2, 104.4-121.0 mm SL, Departamento de Boyacá, Togüí, finca Versalles, río Ubaza. ICNMHN 3235, 6, 36.9-68.1 mm SL, Departamento de Santander, Charalá, corregimiento de Virolín. ICNMHN 5371, 5, 48.0-84.8 mm SL, Departamento de Santander, Simacota-Chima road, quebrada Guamacá. ICNMHN 5445, 9, 47.7-117.0 mm SL, Departamento de Boyacá, río Suárez, río Sáchica. ICNMHN 15328, 1, 85.6 mm SL (female), Without exact locality data. ICNMHN 15329, 1, 85.9 mm SL (female), Without exact locality data. ICNMHN 15330, 1, 80.9 mm SL (female), Without exact locality data. ICNMHN 15331, 1, 77.9 mm SL (female), Without exact locality data. ICNMHN 15332, 1, 72.5 mm SL (female), Without exact locality data. ICNMHN 15333, 1, 89.9 mm SL (female), Without exact locality data. ICNMHN 15334, 1, 103.6 mm SL (female), Without exact locality data. ICNMHN 15335, 1, 76.8 mm SL (female), Without exact locality data. ICNMHN 15336, 1, 81.9 mm SL (female), Without exact locality data. ICNMHN 16016, 7, 21.9-54.4 mm SL, Departamento de Santander, El Playón, río Lebrija, quebrada La Naranjera. ICNMHN 16017, 1, 42.8 mm SL, Departamento de Santander, El Playón, río Lebrija, quebrada La Naranjera. ICNMHN 16018, 3, 22.8-46.5 mm SL, Departamento de Santander, El Playón, río Lebrija, quebrada La Naranjera. ICNMHN 17498, 3, 48.6-106.8 mm SL, Departamento de Boyacá, río Suárez, río Sáchica. ICNMHN 17500, 6, 76.2-127.4 mm SL, Without exact locality data. ICNMHN 17501, 42, 59.36-120.58 mm SL, 4 cs, Departamento de Santander, Bucaramanga, río Tona. ICNMHN 17505, 3, formerly CAR 102, 76.7-61.2 mm SL, Departamento de Santander, Floridablanca, río Lebrija, río Frío. MLS 522, 11, (43.6-129.4 mm SL), Departamento de Boyacá, Santa Rosa de Viterbo, río Arriba. MLS 542, 1, 120.2 mm SL, Departamento de Boyacá, Santa Rosa de Viterbo, río Arriba. MLS 543, 6, 61.9-89.4 mm SL, Departamento de Santander, San Gil. MLS 550, 1, 63.5 mm SL, Departamento de Santander, San Gil.

Diagnosis. *Dolichancistrus carnegiei* can be separated from all congeners in the size and form of the cheek plates (plates externally of approximately the same size and nearly square from lateral view with the anterior margin of posterior cheek plate not reaching to the anterior margin of exposed opercle *vs.* the anterior plate longitudinally shorter than the posterior plate in *D. atratoensis* or both plates about the same size but rectangular in *D. cobrensis* and *D. fuesslii*). *Dolichancistrus carnegiei* is further distinguished from *D. atratoensis* in the length of the addressed pectoral-fin spine in mature males (extending to the tip of the addressed pelvic fin *vs.* extending only midway down the length of the addressed pelvic fin, respectively) and in the distance from the base of the anal-fin spine to the tip of the fin (at least one-half *vs.* at most one-third of the length of the pelvic-fin spine, respectively). *Dolichancistrus carnegiei* additionally differs from *D. cobrensis* in the condition of the buccal papilla within the oral cavity at the limit of the symphysis of the premaxillae (present *vs.* absent, respectively) and the pattern of development of the enlarged odontodes along the margin of the snout in mature males (odontodes present along the entire anterior and anterolateral margins of the snout *vs.* limited to the lateral margins of the snout, respectively). *Dolichancistrus carnegiei* is further

distinguished from *D. fuesslii* in the form of the distal margin of the pelvic fin in mature males (smoothly convex vs. W-shaped, respectively).

Description. See description under generic account for features general for *Dolichancistrus*. Largest examined specimen 153.7 mm SL. Morphometrics presented in Table

1. Dorsal-fin rays ii,8 or 9; anal-fin rays ii,2 or 3; caudal-fin rays i,14,i; pectoral-fin rays i,6; pelvic-fin rays i,5. Preadipose plates 2 or 3; median plates 24 to 26. Buccal papilla present within oral cavity at limit of symphysis of premaxillae. Enlarged odontodes present along entire anterior and anterolateral margins of snout in mature males. Odontodes along lateral margin of snout terminate distinctly short of

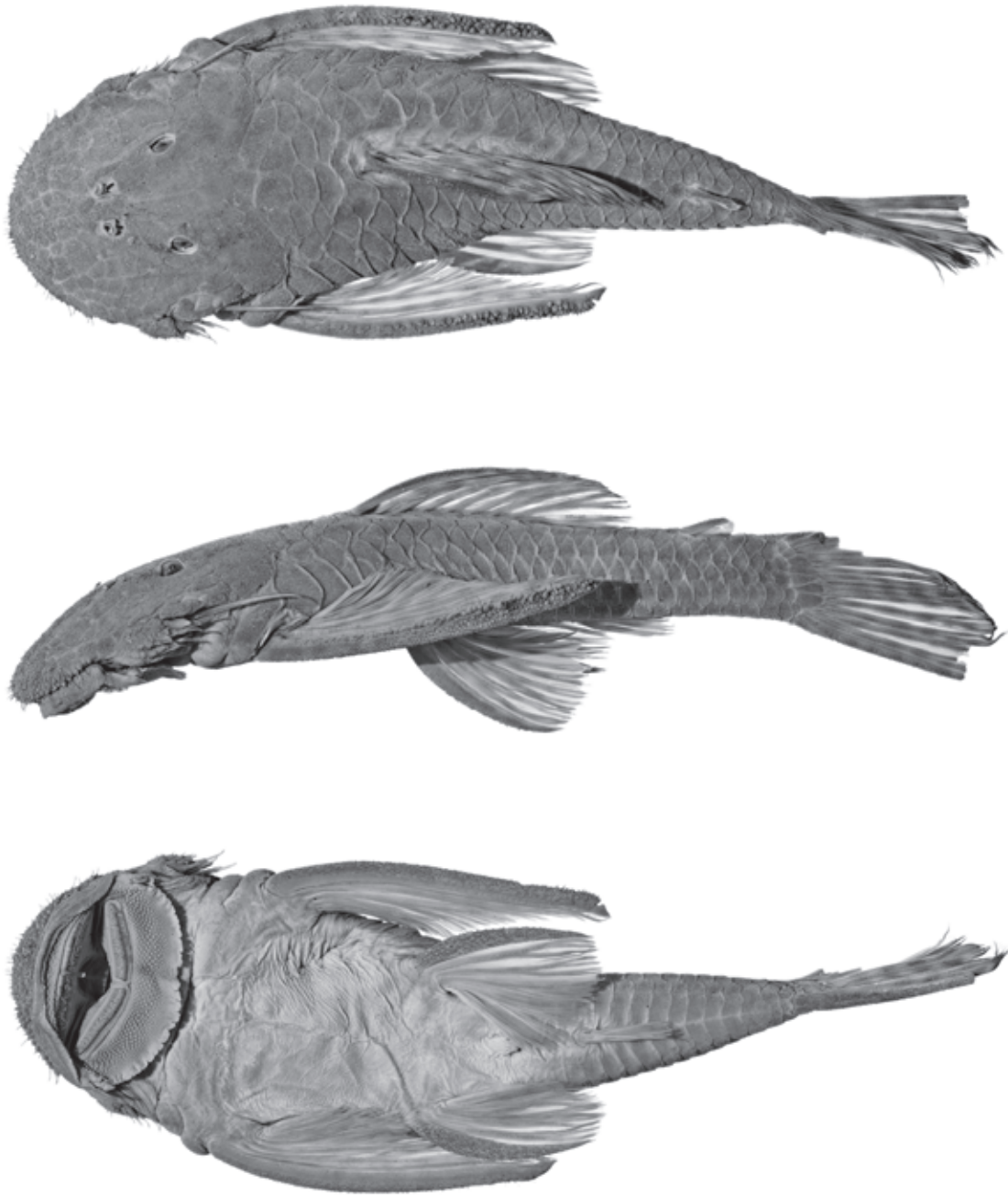


Fig. 3. *Dolichancistrus carnegiei*, CAS 56749, 126.4 mm SL. Colombia, Departamento de Boyacá, río Baipé: dorsal, lateral and ventral views.

anterior margin of cheek plates. Anterior margin of posterior cheek plate distinctly separated from anterior margin of exposed portion of opercle. Anterior and posterior cheek plates of approximately same length; square in lateral view. Hypertrophied cheek odontodes recurved distally. Distal margin of pelvic fin straight in juveniles and smoothly convex in mature specimens. Adpressed pectoral-fin spine reaching posteriorly to area between middle and tip of adpressed pelvic fin in mature males and to middle of pelvic-fin spine in mature females. Odontodes extending over distal one-third of dorsal surface of pectoral-fin spine. Caudal-fin margin oblique to slightly emarginate.

Coloration in alcohol. Overall ground coloration of head and body brownish on lateral and dorsal surfaces, lightly pigmented ventrally other than for brown upper lip. Longitudinal dark lateral stripe evident in juveniles and sometimes in adults. Dorsolateral region of body in juveniles with some more lightly colored patches, particularly in area underneath dorsal fin but with clear patches barely evident in some adults. Largest examined individual with nearly uniform dark coloration on head and body. Dorsal fin with alternating dark and light areas along rays; pigmentation forms irregular oblique stripe-like pattern along length of fin. Spacing between dark marks on rays variable, but individual dark areas always distinct. Dorsal-fin membranes typically unpigmented, but pigmentation patches overlying rays extend onto adjacent membranes in some individuals. Anal fin with dark pigmentation in form of transverse bands or single diffuse spot. Caudal fin with alternating dark and light areas along rays; pigmentation forms irregular transverse bar-like pattern across vertical extent of fin. Pectoral-fin spine with alternating dark and light stripes along dorsal surface and ventral surface unpigmented. Largest examined specimen with dorsal surface of spine nearly uniformly dark. Pectoral-fin rays with alternating dark and light areas forming stripe-like transverse pattern. Pelvic-fin spine with alternating dark and light areas along dorsal surface; pattern more obvious in larger individuals. Pelvic-fin rays with some irregular darker areas on rays in smaller individuals, but with diffuse barring pattern in larger specimens.

Sexual dimorphism. Mature males of *Dolichancistrus carnegiei* have odontodes along the margin of the snout very slightly more developed than in mature females or dimorphism in this feature is absent. Mature males have proportionally longer pectoral-fin spines than mature females.

Distribution. *Dolichancistrus carnegiei* occurs in eastern tributaries of the middle portion of the río Magdalena basin along the Cordillera Oriental in the departments of Boyacá and Santander, Colombia (Fig. 2).

Remarks. Eigenmann (1916) reported the type locality for *Dolichancistrus carnegiei* as the río San Gil; however, the official name for this river in the municipality of San

Gil, Santander was changed to río Fonce early in the twentieth century (R. Caicedo, pers. comm.). Dahl (1971: 85) reported that *Dolichancistrus carnegiei* (his *Pseudancistrus carnegiei*) grows to approximately 20 cm (SL?). Both Miles (1947: 108) and Dahl (1971: 85) noted that the species was exploited for food and was of some economic importance.

Specimens of *Dolichancistrus carnegiei* from Boyacá, Colombia (IAvH-P 5263, 10733, 10735) vary in the degree of fin development and some individuals have foreshortened pectoral, pelvic, caudal, and anal fins albeit without any obvious pattern to these reductions. These individuals also differ in the pigmentation of the lateral surface of the body, most prominently in the presence of unpigmented regions. This variation likely represents populational anomalies. Samples with definitive locality data show *D. carnegiei* and *D. fuesslii* to be allopatrically distributed; however, these species are commingled a few ICNMHN and IAvH-P lots. These series were collected along potential trans-cordilleran oil pipeline routes spanning the distribution of the two species and likely represent intermingled samples collected to both sides of the Cordillera Oriental.

Dolichancistrus cobrensis (Schultz, 1944)

Fig. 4

Pseudancistrus pediculatus cobrensis Schultz, 1944: 299, pl. 9, fig. b [type locality: Venezuela, Maracaibo basin, río Catatumbo basin, río Cobre, tributary to río Quinta, latter tributary to río La Grita, below La Grita]. - Gosline, 1945: 90 [in checklist of Neotropical catfishes]. - Mago-Leccia, 1970: 26 [Venezuela; common name]. - Nijssen *et al.*, 1982: 61 [type depository]. - Ferraris & Vari, 1992: 31 [type depository]. - Provenzano *et al.*, 1998: 212 [type depository]. - Galvis *et al.*, 1997: 96 [Colombia, Lago Maracaibo basin, río Catatumbo; illustrated specimen misidentified].

Dolichancistrus cobrensis Isbrücker, 1980: 48 [shift to *Dolichancistrus*]. - Burgess, 1989: 434 [in listing of species of Loricariidae]. - Taphorn *et al.*, 1997: 87 [Venezuela]. - Isbrücker, 2001: 26 [in listing of species of Loricariidae]. - Isbrücker, 2002: 15 [in listing of species of Loricariidae]. - Fisch-Muller, 2003: 384 [in checklist of species of the Ancistrinae]. - Armbruster, 2004a: 48, fig. 38 [in phylogenetic analysis of Loricariidae]. - Lasso *et al.*, 2004a: 173 [Lago Maracaibo basin]. - Ferraris, 2007: 235 [in checklist of catfishes].

Material examined. AUM 46306, 22, 4, 56.1-92.0 mm SL, Venezuela, río Orinoco drainage, río San Antonio, tributary of río San Jose de Bolivar-río Uribante system. AUM 30377, 12, 2, 73.7-76.0 mm SL, 3 cs, Venezuela, río Orinoco drainage, río San Antonio, tributary of río San Jose de Bolivar-río Uribante system. MCNG 541, 2, 30.9-54.1 mm SL, Colombia, Departamento de Norte de Santander, El Guayabal, Cúcuta-Chinácota road.

MCNG 6470, 4, 36.0-55.0 mm SL, Venezuela, río Orinoco drainage, río Quirimari basin, quebrada La Legia, along river above Alquitrona at bridge to Libertá, 7°38'28"N 72°22'30"W. USNM 121036, holotype, 78.0 mm SL, Venezuela, Estado de Táchira, Lago Maracaibo basin, río Cobre, tributary to río Quinta, latter tributary to río La Grita, below La Grita. USNM 121037, paratypes, 4000 + (20, 10 males and 10 females, 47.6-63.1 mm SL), Venezuela, Estado de Táchira, Lago Maracaibo basin, río Cobre, tributary to río Quinta, latter tributary to río La Grita, below La Grita.

Diagnosis. *Dolichancistrus cobrensis* is distinguished from all congeners in the condition of the buccal papilla at the limit of the symphysis of the premaxillae (papilla absent vs. present, respectively). *Dolichancistrus cobrensis* further differs from *D. atratoensis* in the length of the pectoral-fin spine in mature males (extending beyond the tip of the addressed pelvic fin vs. extending only midway down the length of the addressed pelvic fin, respectively). *Dolichancistrus cobrensis* is additionally distinguished

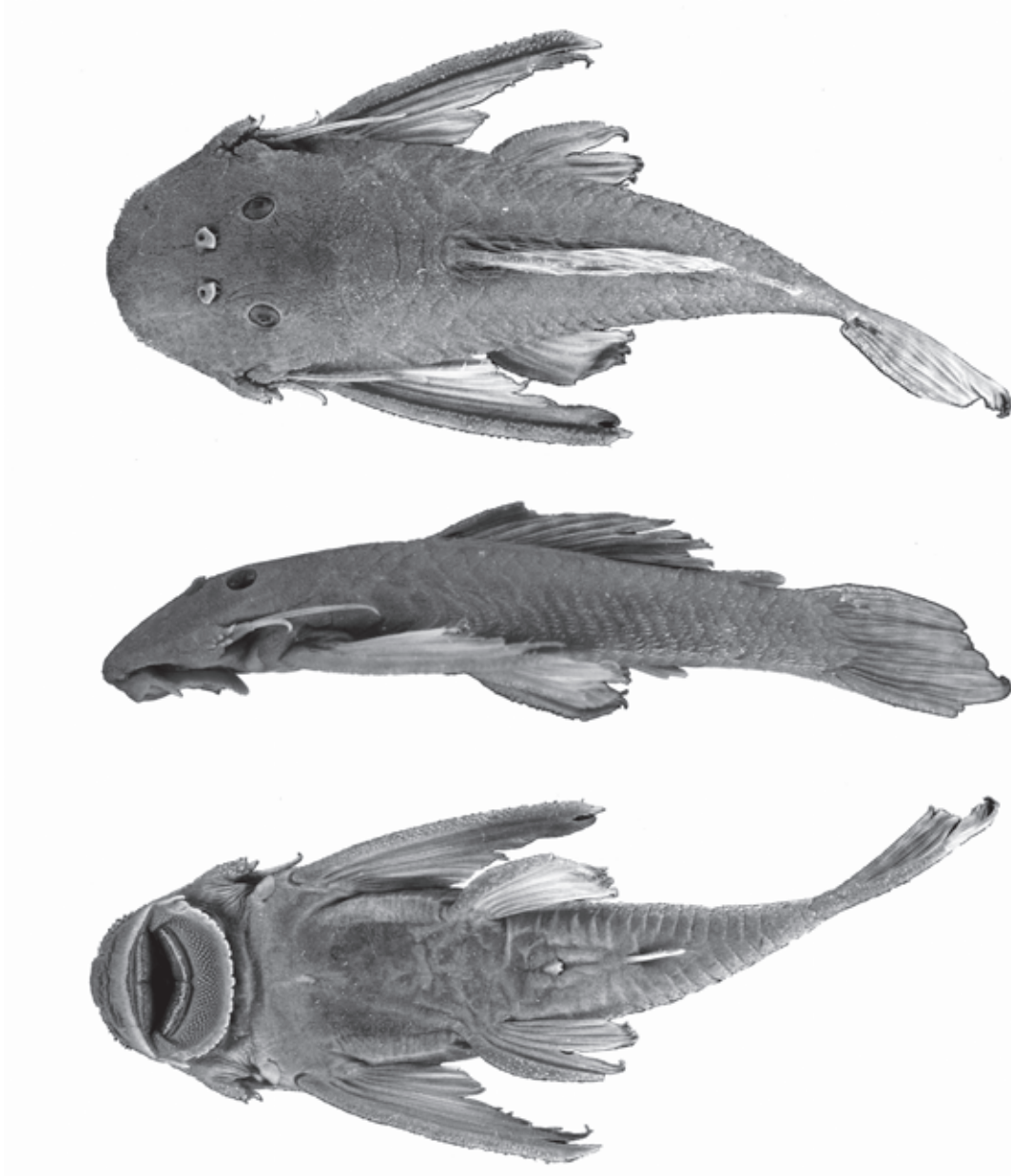


Fig. 4. *Dolichancistrus cobrensis*, MCNG 541, 54.1mm SL. Colombia, Departamento de Norte de Santander, El Guayabal, Cúcuta - Chinácota road; dorsal, lateral and ventral views.

from *D. carnegiei* in the pattern of development of the enlarged odontodes along the margin of the snout in mature males (odontodes limited to the lateral margins of the snout *vs.* extending along the entire anterior and anterolateral margins of the snout, respectively). *Dolichancistrus cobrensis* further differs from *D. fuesslii* in the form of the distal margin of the pelvic fin in males (approximately smoothly convex *vs.* W-shaped, respectively), the pattern of distribution of the odontodes along the margin of the snout (odontodes located primarily along the lateral margin of the snout *vs.* extending along the entire anterior and anterolateral margins of the snout, respectively), and the extent of development of the odontodes on the dorsal portion of the pectoral-fin spine (extending over distal one-third of the spine *vs.* over distal one-half of the spine, respectively).

Description. See description under generic account for features general for *Dolichancistrus*. Largest examined specimen 92.0 mm SL. Morphometrics presented in Table 1. Dorsal-fin rays ii,7 to 9; anal-fin rays ii,3; caudal-fin rays i,14,i; pectoral-fin rays i,6; pelvic-fin rays i,5. Preadipose plates 2 or 3; median plates 24 or 25. Buccal papilla within oral cavity absent at limit of symphysis of premaxillae. Enlarged odontodes in mature specimens present along anterolateral margins of snout but absent from anterior margin of snout. Odontodes along lateral margin of snout terminate distinctly short of anterior margin of cheek plates and not showing sexual dimorphism contrary to presence of dimorphism in other species of *Dolichancistrus*. Anterior margin of posterior cheek plate slightly separated from exposed portion of opercle. Anterior and posterior cheek plates square, of approximately same length. Hypertrophied odontodes on cheek apparatus recurved distally. Distal margin of pelvic fin smoothly convex. Addressed pectoral-fin spine in mature males reaching posteriorly distinctly beyond tip of addressed pelvic fin. Addressed pectoral-fin spine of mature females reaching posteriorly to within area slightly beyond midpoint of addressed pelvic fin and slightly short of tip of pelvic fin. Odontodes extending over nearly distal one-third of dorsal portion of pectoral-fin spine.

Coloration in alcohol. Overall ground coloration of head and body brownish on lateral and dorsal surfaces, lightly colored ventrally other than for brown upper lip. Head with patch of somewhat darker pigmentation in region anterior and ventral to orbit. Body in juveniles and smaller individuals with five distinct midlateral dark spots; anteriormost spot located slightly anterior to vertical through dorsal-fin origin and posteriormost spot on caudal peduncle. Midlateral series of dark spots of larger individual variably coalesce to give appearance of irregular midlateral stripe in some individuals. Dorsal surface of body with four saddle-like marks more obvious in smaller individuals. First mark located under anterior portion of dorsal fin,

second under base of posterior dorsal-fin rays, third between dorsal and adipose fins, and fourth immediately behind posterior terminus of adipose fin. Contralateral third and fourth marks continuous across dorsal midline. Dorsal fin with alternating dark and light areas along rays that form irregular stripe-like pattern along length of fin. Dorsal-fin membranes lack dark pigmentation. Anal fin lacking dark pigmentation. Caudal fin with alternating dark and light areas on rays that form irregular transverse bar-like pattern across vertical extent of fin. Pectoral-fin spine with alternating dark and light regions on dorsal surface and with ventral surface lacking dark pigmentation. Pectoral-fin rays in smaller individuals without obvious dark pigmentation; larger specimens with alternating dark and light pigment pattern on lateral rays, but with medial rays and all membranes lacking dark pigmentation. Pelvic-fin spine with alternating dark and light areas; pattern more obvious in larger individuals. Pelvic-fin rays with some irregular darker areas on rays, but without distinct barring pattern. Pigmentation less obvious in smaller individuals.

Sexual dimorphism. Mature males and females of *Dolichancistrus cobrensis* have comparably developed odontodes along the lateral margins of the snout, contrary to the distinctly larger odontodes in males *versus* females in congeners. The pectoral-fin spines of mature males are proportionally longer than those of mature females.

Distribution. *Dolichancistrus cobrensis* is known from the southern portion of the río Catatumbo, a western tributary to Lago Maracaibo basin in Colombia and Venezuela, and localities in the upper río Apure in the río Orinoco basin (Fig. 2).

Common name. Chorrosco, panche (Mago-Leccia, 1970: 86).

Habitat. Schultz (1944: 299) reported that the types of the species were collected in “very swiftly running water among rubble to gravel.”

Remarks. In the description of *Dolichancistrus cobrensis*, Schultz (1944: 299) recognized it as a subspecies of *Pseudancistrus pediculatus* and differentiated his *P. pediculatus cobrensis* from *P. pediculatus pediculatus* (= *Dolichancistrus fuesslii* herein) by color pattern and minor mean meristic differences. Isbrücker (1980: 48) recognized *Pseudancistrus pediculatus cobrensis* as a species, *Dolichancistrus cobrensis*, without discussion of the basis for the transition to species status. Subsequent authors followed Isbrücker (1980). Our analysis revealed that *P. pediculatus cobrensis* and *P. pediculatus pediculatus* (= *Dolichancistrus fuesslii*) differ in the form of the pelvic-fin margin, the relationship of the posterior cheek plate with the exposed portion of the opercle, the condition of the buccal papilla at the posterior limit of the premaxillary symphysis, the pattern of distribution of odontodes along the snout margin, and the development of odontodes along the dorsal

portion of the pectoral fin. These forms are considered distinct, but with *P. pediculatus pediculatus* as a synonym of *Dolichancistrus fuesslii* (see Remarks under *D. fuesslii*).

Galvis *et al.* (1997: 96) included a life coloration photo in their account of *Pseudancistrus pediculatus cobrensis* (the *Dolichancistrus cobrensis* of this study) from the río Catatumbo in Colombia. The illustrated specimen is rather an individual of *Lasiancistrus*, most likely *L. guacharote* which is the only member of the genus reported from that basin.

***Dolichancistrus fuesslii* (Steindachner, 1911)**

Fig. 5

Ancistrus füsslii Steindachner, 1911: 373 [type locality: Ostkolumbien, Sosomoco, 800 m Höhe (= Eastern Colombia, Sosomoco, 800 m elevation; see under Remarks concerning type locality information)].

Pseudancistrus pediculatus Eigenmann, 1917: 679 [type locality: Colombia, río Negro Villavicencio]. -



Fig. 5. *Dolichancistrus fuesslii*, ICNMHN 14582, 117 mm SL. Colombia, Departamento de Boyacá, río Garagoa basin; dorsal, lateral and ventral views.

- Eigenmann, 1922: 78, 224; fig. 17, pl. 10, fig. 4, pl. 12, fig. 3 [in part, Colombia, Villavicencio, Barrigón, Tengavita; record from río San Juan basin of western Colombia questionable, see Remarks]. - Henn, 1928: 85 [type depository]. - Fowler, 1942: 132 [Colombia, río Meta; not citations of species from río San Juan and río Tamana]. - Gosline, 1945: 90 [in checklist]. - Ibarra & Stewart, 1987: 70 [type depository].
- Lasiancistrus fuesslii* Isbrücker, 1980: 44 [correction of diacritic mark in specific epithet; shift to *Lasiancistrus*].
- Dolichancistrus pediculatus* Isbrücker, 1980: 48 [shift to *Dolichancistrus*]. - Isbrücker, 2001: 27 [in listing of species of the Loricariidae]. - Isbrücker, 2002: 27 [in listing of species of the Loricariidae]. - Burgess, 1989: 434 [in listing of species of Loricariidae]. - Fisch-Muller, 2003: 384 [in checklist of species of Ancistrinae]. - Lasso *et al.* 2004a: 173 [río Orinoco basin]. - Armbruster, 2004a: 48, fig. 38 [phylogenetic systematics of Loricariidae]. - Lasso *et al.*, 2004b: 131 [río Meta basin]. - Maldonado-Ocampo *et al.*, 2005: 154, map 146 [in part; Andes of Colombia, río Negro at Villavicencio; summary data]. - Ferraris, 2007: 235 [in checklist of catfishes]. - Maldonado-Ocampo *et al.*, 2008: 198 [Colombia]. - Urbano-Bonilla *et al.*, 2009: 160 [Colombia, Departamento de Casanare].
- Dolichancistrus fuesslii* Isbrücker, 2001: 27 [shift to *Dolichancistrus*]. - Isbrücker, 2002: 27 [in listing of species of the Loricariidae]. - Fisch-Muller, 2003: 384 [in checklist of species of Ancistrinae]. - Maldonado-Ocampo *et al.*, 2005: 154, map 146 [Andes of Colombia; Sosomoco (= Meta, Quebrada Susumuco; correction of misspelling and elaboration of originally cited type locality; see Remarks); summary data and translation of original description of *A. fuesslii* Steindachner]. - Ferraris, 2007: 235 [in checklist of catfishes]. - Maldonado-Ocampo, 2008: 198 [Colombia].
- Material examined.** All collections from Colombia. CAS 58789 (formerly IU 13928), paratypes of *Pseudancistrus pediculatus*, 7, 5, 47.94-80.95 mm SL, Departamento de Meta, Villavicencio, quebrada Gramalote. CAS 58790 (formerly IU 13665), 3, 2, 32.9-38.3 mm SL, Departamento de Meta, Villavicencio, quebrada Gramalote. CAS 58795 (formerly IU 13945), 6, 19.1-32.7 mm SL, Departamento de Meta, Villavicencio, quebrada Sumico (= Susumuco). CAS 58799 (formerly IU 13939), 5, 12.7-43.5 mm SL, Departamento de Cundinamarca, Quetame, río Contador. CAS 58820 (formerly IU 13929), paratypes of *Pseudancistrus pediculatus*, 2, 59.7-72.1 mm SL, Departamento de Meta, Puerto Porfía, Barrigona. CZUT-IC 3327, 1, 63.5 mm SL, Departamento de Boyacá, San Luis de Gaceno, vereda Calichama, quebrada El Chopal, tributary of río Lengupa. CZUT-IC 3346, 1, 47.3 mm SL, Sabanalarga, Vereda San Joaquín, quebrada La Raya, tributary of río Upía. CZUT-IC 5491, 13, 21.6-63.9 mm SL, Departamento de Casanare, quebrada Agua Blanca. FMNH 40217, 1, 95.3 mm SL, Departamento de Meta, Villavicencio. FMNH 58562, 6, 12.8-22.7 mm SL, Departamento de Cundinamarca, Quetame, río Contador. FMNH 58563, 21, 13.4-43.2 mm SL, Departamento de Meta, Villavicencio, quebrada Blanca. FMNH 58566, 17, 2 cs, 22.5-67.4 mm SL, Departamento de Meta, Villavicencio. IAvH-P 3939, 7, 42.2-85.3 mm SL, Departamento de Boyacá, río Jenesano. IAvH-P 3940, 16, 40.6-103.1 mm SL, Departamento de Boyacá, río Orinoco drainage, río Meta basin, without exact locality data. IAvH-P 7931, 22, 16.8-33.3 mm SL, Departamento de Meta, Villavicencio, Quebrada Susumuco, at mouth into río Negro. IAvH-P 9230, 22, 58.6-97.0 mm SL, Departamento de Casanare, Aguazul, Aguazul-Sogamoso road, quebrada Chichaca IAvH-P 9605, 7, 63.5-124.4 mm SL, Departamento de Casanare, Aguazul, Aguazul-Sogamoso road, quebrada Chichaca. IAvH-P 11381, 9, 25.8-105.8 mm SL, Departamento de Boyacá, río Orinoco drainage, río Meta basin, without exact locality data. ICNMHN 1177, 1, 97.9 mm SL, Departamento de Meta, Acacías, Acacías-Guamal road, unnamed tributary of río Acacías. ICNMHN 1196, 2, 57.9-85.5 mm SL, Departamento de Meta, Acacías, río Acacías, río Playón, 500 masl. ICNMHN 1474, 14, 33.0 - 80.3 mm SL, Departamento de Cundinamarca, Cáqueza, río Negro, río Cáqueza. ICNMHN 1475, 10, 29.8-62.5 mm SL, Departamento de Cundinamarca, Cáqueza, río Saname. ICNMHN 2638, 11, 35.7-95.1 mm SL, Departamento de Casanare, Aguazul, quebrada Costa Grande near retén de Guadalcanal, 860 masl. ICNMHN 2650, 5, 62.4-96.5 mm SL, Departamento de Casanare, Aguazul, quebrada Costa Grande, 860 masl. ICNMHN 2817, 7, 60.8-93.3 mm SL, Yopal, quebrada Costa Grande, near Pajarito (Boyacá), 800 masl. ICNMHN 2839, 1, 66.0 mm SL, Departamento de Boyacá, San Luis de Gaceno, quebrada La Quinchalera. ICNMHN 3212, 12, 22.3-80.9 mm SL, Departamento de Boyacá, Santa María, río Batá, road to Chivor. ICNMHN 3385, 1, 62.6 mm SL, Departamento de Meta, Guamal, caño Camelia. ICNMHN 3560, 2, 37.0-49.3 mm SL, Departamento de Meta, Serranía de La Macarena, río Duda, río Guape between Cruce Oriente and quebrada Uribe. ICNMHN 3641, 6, 45.2-64.8 mm SL, Departamento de Meta, Acacías, río Acacías, caño Acacías. ICNMHN 7945, 26, 22.7-90.0 mm SL, Departamento de Boyacá, Pajarito, río Cusiana. ICNMHN 7979, 2, 40.0-69.2 mm SL, Colombia, no specific locality data. ICNMHN 7993, 3, 33.7-62.9 mm SL, ICNMHN catalog data citing collection locality as near Leticia incorrect; see Ballen (2011) for further details. ICNMHN 7996, 12, 32.6-72.7 mm SL, Colombia, no specific locality data. ICNMHN 8003, 1, 56.1 mm SL, Departamento de Meta, Cumaral, caño Pecuca, quebrada Piedras Negras. ICNMHN 13198, 1, 53.6 mm SL, Departamento de Meta, Cumaral, río Guacavía, caño Pecuca. ICNMHN 14582, 30, 56.5-117.0 mm SL, Departamento de Boyacá, Santa María, río Garagoa basin. ICNMHN 15337, 1, 62.3 mm SL, female, Colombia, no specific locality data. ICNMHN 15338, 1, 74.7 mm SL, female, Colombia, no specific locality data. ICNMHN 15339, 1, 81.6 mm SL, female, Colombia, no specific locality data. ICNMHN 15340, 1, 84.1 mm SL, male, Colombia, no specific locality data. ICNMHN 16811, 4, 85.2-101.8 mm SL, Departamento de Boyacá, Jenesano, río Garagoa, 2100 masl. ICNMHN 17504 (formerly CAR 294), 1, 68.9 mm SL, Departamento de Boyacá, río Jenesano. MLS 538, 1, 102.9 mm SL, Departamento de Boyacá, Guacaramo. MLS 545, 2, 85.8-100.7 mm SL, Colombia, no specific locality data. MLS 549, 1, 76.4 mm SL, Departamento de Meta, Villavicencio. MLS 746, 4, 19.2-93.8 mm SL, Monterralo, Yopal-Sogamoso road 15 km before Pajarito, quebrada Mesiana, tributary of quebrada Guacharaca. MLS 796, 1, 54.7 mm SL, Departamento de Cundinamarca, Tibirita, río Mchetá, 1500 masl. NMW 48026, 1 (97.7 mm SL; holotype of *Ancistrus fuesslii*), Colombia: Ostkolumbien, Sosomoco, 800 m Höhe" (= eastern Colombia, Sosomoco, 800 m in elevation; see comments under Remarks concerning type locality). NRM 15171, 1, 47.9 mm SL, Departamento de Meta, Villavicencio, Buenavista, unnamed

tributary of río Negro, NRM 30168, 1, 60.3 mm SL, Departamento de Cundinamarca, Quetame, río Contador. USNM 100786, 1, 78.9 mm SL, Departamento de Boyacá, Guaicaramo. NMW 48026, 1 (97.7 mm SL; holotype of *Ancistrus fuesslii*), Colombia: Ostkolumbien, Sosomoco, 800 m Höhe" (= eastern Colombia, Sosomoco, 800 m in elevation; see comments under Remarks concerning type locality).

Diagnosis. *Dolichancistrus fuesslii* is distinguished from all congeners in the form of the distal margin of the pelvic fin in mature males (margin of the fin distinctly W-shaped, with the longer lateralmost unbranched ray followed by a second ray that is distinctly shorter laterally and with the medial portion of the second ray and the third ray progressively longer than the first ray and followed by the progressively shorter fourth and fifth rays *vs.* the margin of the pelvic fin straight to approximately smoothly convex, respectively). *Dolichancistrus fuesslii* is further separable from congeners in the relative position of the anteromedial margin of the posterior cheek plate with respect to the anterior margin of the exposed portion of opercle (anterior margin of posterior cheek plate in contact with anterior margin of the exposed portion of opercle when cheek apparatus adpressed *vs.* posterior cheek plate distinctly separated from anterior margin of exposed opercle). *Dolichancistrus fuesslii* can be further differentiated from *D. atratoensis* in the relative size and shape of the cheek plates (the two plates of approximately the same length and rectangular in shape, *vs.* the anterior plate approximately one-half the length of the posterior plate and triangular, respectively), the relative length of the pectoral-fin spine in mature males (spine reaching posteriorly far beyond the posterior tip of the adpressed pelvic fin *vs.* only reaching midway along the length of the pelvic fin, respectively). *Dolichancistrus fuesslii* can be further separated from *D. carnegiei* in the relative shape of the cheek plates (both cheek plates rectangular, *vs.* square, respectively) and coloration pattern (presence of lateral dark blotches *vs.* diffuse marbling on lateral portions of body, respectively). *Dolichancistrus fuesslii* further differs from *D. cobrensis* in the condition of the buccal papilla within the oral cavity at the posterior limit of the premaxillary symphysis (a papilla present *vs.* absent, respectively) and the pattern of distribution of the hypertrophied odontodes along the margin of the snout in mature males (odontodes extensive and continuously distributed along the entire anterior and anterolateral margins of the snout, *vs.* odontodes restricted to the anterolateral corners of snout, respectively).

Description. See description under generic account for features common to all species of *Dolichancistrus*. Largest examined specimen 124.4 mm SL. Morphometrics and meristics presented in Table 1. Dorsal-fin rays ii,7 to 9; anal-fin rays ii,2 or 3; caudal-fin rays i,14,i [i,12,i in one aberrant individual]; pectoral-fin rays i,6; pelvic-fin rays i,5. Preadipose plates 2 or 3; median plates 24 or 25. Buccal papilla present within oral cavity at symphysis of premaxillae. Enlarged odontodes present along entire anterolateral and

anterior margins of snout and on median region of snout anterior to nares. Odontodes along snout margin terminate posteriorly distinctly short of anterior margin of cheek plates. Anterior margin of posterior cheek plate in contact with anterior exposed margin of opercle. Anterior and posterior cheek plates rectangular and approximately of same size. Hypertrophied cheek odontodes distally recurved. Distal margin of pelvic fin in mature males W-shaped with longer first ray followed by shorter lateral branch of second ray and then increasingly longer medial branch of second ray and all of third ray and then progressively shorter fourth and fifth rays. Spine of adpressed pectoral fin of mature males surpassing tip of adpressed pelvic-fin spine. Adpressed pectoral-fin spine of mature females reaching posteriorly to within area from mid-length of adpressed pelvic fin to the tip of pelvic fin. Odontodes on dorsal surface of pectoral-fin spine extending over distal one-half of spine in mature males.

Coloration in alcohol. Overall ground coloration of head and body brownish on lateral and dorsal surfaces, lightly colored ventrally other than for brown upper lip. Body in juveniles and smaller individuals with five or six distinct midlateral dark spots ranging from slightly anterior of vertical through dorsal-fin origin to caudal peduncle. Midlateral series of dark spots less obvious in larger individuals. Some overall darker individuals with midlateral pigmentation barely apparent. Specimens collected from higher elevation locations sometimes lack discrete marks along sides of body, showing instead diffuse longitudinal stripe in that region. Dorsal surface of body with four saddle-like marks; marks more obvious in smaller individuals. First mark located under anterior portion of dorsal fin, second under base of posterior dorsal-fin rays, third between dorsal and adipose fins, and fourth immediately behind posterior terminus of adipose fin. Third and fourth marks continuous across dorsal midline. Saddle-like marks obscured in specimens with dark gray overall coloration. Dorsal fin with alternating variably separated dark and light areas along rays that form irregular bar-like pattern along length of fin. Dorsal-fin membranes lack dark pigmentation. Anal fin in most examined specimens lacks dark pigmentation, but some barring or spots present in samples from higher elevations. Caudal fin with alternating dark and light areas along rays that form irregular transverse bar-like pattern across vertical extent of fin. Pectoral-fin spine with alternating dark and light regions on dorsal surface but dark pigmentation absent from ventral surface. Pectoral-fin rays in smaller individuals without dark pigmentation; larger specimens with alternating dark and light pigment pattern on lateral rays, but with medial rays unpigmented. Pelvic-fin spine with alternating dark and light areas along length; pattern more obvious in larger individuals. Pelvic-fin rays with some irregular darker areas but distinct barring pattern on rays in smaller individuals and distinct barring in larger specimens.

Sexual dimorphism. The pelvic-fin margin in *Dolichancistrus fuesslii* is sexually dimorphic, being distinctly W-shaped in mature males versus broadly convex in mature females and immatures. Odontodes along the snout margin are more highly developed in mature males than in mature females.

Distribution. *Dolichancistrus fuesslii* occurs from the northern portion of the Serranía de La Macarena, Departamento do Meta north to Yopal, Departamento do Casanare, Colombia, at approximately 450 to 2100 masl. All records are from upland tributaries in the río Duda and río Meta basins along the eastern flank of the Cordillera Oriental in the río Orinoco system (Fig. 2). Samples of the species in ICNMHN supposedly from Leticia, Departamento de Amazonas, Colombia, likely have incorrect locality information as is the case with the other lots of various species discussed by Ballen (2011: 394).

Remarks. Steindachner (1911: 373) cited the type locality of *Ancistrus fuesslii* as Ostkolumbien, Sosomoco, 800 m Höhe (= eastern Colombia, Sosomoco, 800 m elevation), without information on the collector. The collector apparently was A. H. Fassl who also sampled lepidopterans during 1911 at that location in the east of the Departamento de Meta, Colombia (Holzinger & Brown, 1982: 26; Salazar-E., 2008: 148). The species name (*füsslii*) appears to be a printer's lapsus for the collector's name (Fassl) since Steindachner applied the correct patronymic to a species of *Trichomycterus* (*Pygidium fasslii*, Ferraris, 2007: 418). Sosomoco is an apparent incorrect citation of quebrada Susumuco in the east of the Departamento de Meta with that stream running through the adjoining Departamento de Cundinamarca to the río Negro upstream of Villavicencio (Maldonado-Ocampo *et al.*, 2005: 154; Salazar-E., 2008: 148). The location cited as Sumico (CAS 58795) in the material examined may also be an erroneous citation of Susumuco.

Type localities for *Ancistrus fuesslii* and *Pseudancistrus pediculatus* lie very close to each other in the same basin in the western reaches of the río Orinoco. Examination of the type series of both nominal species supplemented by an extensive series of other specimens in that area failed to reveal differences between the nominal forms and we place *Pseudancistrus pediculatus* as a subjective junior synonym of *Ancistrus fuesslii* (the *Dolichancistrus fuesslii* of this study).

Eigenmann was apparently unaware of Steindachner's (1911) description of *Ancistrus füsslii*, a species he neither cited in his account of *Pseudancistrus pediculatus* (1917) nor in his monographic study of the fishes of northwestern South America (Eigenmann, 1922). This oversight was universal until Isbrücker's (1980: 44) assignment of the species to *Lasiancistrus*.

Eigenmann (1922: 79) reported *Pseudancistrus pediculatus* (= *Dolichancistrus fuesslii* herein) from the Pacific versant rio Tamaná, a drainage distant from the

known range of the species east of the Andes. Examination of the specimen (CAS 58792; formerly IU 13655) confirms it is an immature *Dolichancistrus* and possibly *D. fuesslii*. The only species of the genus known from rivers of the Pacific slope is *D. atratoensis* which, however, differs from the Eigenmann specimen in multiple details. This raises the question of erroneous locality information for the specimen, a possibility noted by Eigenmann (1922: 79). The specimen was acquired by Eigenmann from "Mr. W. F. H. Rosenberg" who collected at a numerous localities in northwestern South America. The secondary nature of the information increases the possibility that the locality data is incorrect.

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Material Examined. *Chaetostoma* group: *Chaetostoma anale*, ANSP 70525 (holotype), ICNMHN 13397, 17364. *C. dorsale*, ICNMHN 1183, 3372, 3535, 7997, 8011, 8013, 8027, 8031, 17499, 17646, MLS 588, 747, 604. *C. jegui*, INPA uncataloged (photograph). *C. lobarhynchos*, MUSM 20291 (photograph). *C. milesi*, ANSP 69330 (holotype), ICNMHN 10420, 15528, 16123, 16268, 16291, MLS 562. *C. pearsei*, ICNMHN 10361. *C. platyrhynchum*, ICNMHN 5488, 7971, 9417, 17624, 17625, 17626, 17628, 17629, 17630, 17631. *C. sovichthys*, ICNMHN 2381, 16223, MLS 568, 590, 600, USNM 121053 (photograph, radiograph, holotype). *C. tachiraense*, MLS 797, 799, 805, USNM 121052 (photograph, radiograph, holotype). *Chaetostoma* sp., AUM 45597, 45634. *Cordylancistrus daguae*, ICNMHN 3515, 17643, 17644, 17645. *C. perijae*, ANSP 168917 (paratype), ICNMHN 17502 (formerly CAR 270, formerly MBUCV-V 21745, paratype). *C. platycephalus*, BMNH (photograph of holotype). *Cordylancistrus* sp. 1, ICNMHN 17503 (formerly CAR 370), MLS 541. *Cordylancistrus* sp. 2, BMNH 1908.5.29.70-79. *Cordylancistrus* sp. 3, CP-UCO 1060, 1062. *Cordylancistrus* sp. 4, FMNH 76213 (cs). *C. torbesensis*, USNM 121001 (radiograph, holotype). *Leptoancistrus*

canensis, USNM 78300 (radiograph, paratypes). *Leptoancistrus* sp., CIUA 774, 775, 776, 777, 778, 779, 780, 781. *Incertae sedis*: *Chaetostomus setosus*, BMNH 1880.2.26.9-10, syntypes, 2, CIUA 698, 4 (51.04-70.82 mm SL), ICNMHN 1158, 5. **Remainder of Ancistrini.** *Ancistrus centrolepis*, IAvH-P 10473, ICNMHN 104, 189, 1632, 3153. *A. martini*, ICNMHN 1206, 17647, 17648, 17653. *A. triradiatus* ICNMHN 17649, 17654. *Baryancistrus niveatus*, MNRJ 19344. *Dekeyseria niveata*, ANSP 185259. *D. pulcher*, ANSP 185298. *D. scaphirhyncha*, ICNMHN 12787, 12788. *Hemiancistrus guahiborum*, ICNMHN 5323, 11915. *H. punctulatus*, ANSP 170168. *H. sabaji*, ANSP 185153. *Hopliancistrus tricornis*, AUM 39853. *Hypancistrus contradens*, ICNMHN 11917, 11918. *H. debilitata*, ICNMHN 10691. *Lasiancistrus caucanus*, ICNMHN 8763. *L. guacharote*, ICNMHN 16916. *Leporacanthicus galaxias*, AUM 42144. *L. triactis*, ZMA 120774. *Lithoxus jantjajae*, ANSP 182809 (paratypes). *L. lithoides*, ANSP 39121 (paratype). *Megalancistrus aculeatus*, USNM 52594. *Neblinichthys pilosus*, ANSP 157587 (paratypes). *N. roraima*, ANSP 174914 (paratypes). *Panaque maccus*, ICNMHN 15728. *P. cochliodon*, ICNMHN 369. *Peckoltia bachi*, ICNMHN 13952. *P. brevis*, ICNMHN 7952. *P. vittata*, ICNMHN 7954, 12792. *Pseudacanthicus leopardus*, AUM 35550, USNM 197105. *P. spinosus*, USNM 52594. *Pseudancistrus sidereus*, ANSP 185297. *Pseudolithoxus dumus*, ANSP 185255. *Spectracanthicus punctatissimus*, MNHN 1999-0021.

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