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Hypancistrus inspector: A New Species of Suckermouth Armored Catfish (Loricariidae: Ancistrinae)

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***Hypancistrus inspector*, a new species of suckermouth armored catfish from Venezuela, is described and compared to the only other species of *Hypancistrus*, *Hypancistrus zebra*. The two species differ mainly in coloration with *H. inspector* dark brown to black with pale yellow to white spots and *H. zebra* with a boldly contrasting pattern of black and white stripes. *Hypancistrus* is diagnosed based on the unique presence of a sharply angled adductor palatini crest and two reversals: wide anterior separation of the metapterygoid and lateral ethmoid and the loss of the lateral wall of the metapterygoid channel. Specimens of *H. inspector* were found to have many seeds in the intestine suggesting that the species is at least partially granivorous.**

***Hypancistrus inspector*, una nueva especie de corroncho de Venezuela, se describe y compara con la única otra especie de *Hypancistrus*, *Hypancistrus zebra*. Las dos especies se diferencian principalmente en su coloración, con *H. inspector* de un color castaño obscuro a negro y con manchas de color amarillo claro a blanco, y *H. zebra* con lineas de color blanco y negro que contrastan. La diagnosticación de *Hypancistrus* se basa en la presencia única de una cresta adductora palatini de ángulo agudo y dos reversiones: una separación amplia anterior del metapterygoideo y el etmoideo lateral, y la pérdida de la pared lateral del canal metapterygoideo. En el intestino de los espécimenes de *H. inspector* se encontraron muchas semillas sugeriendo que los peces son granívoros por lo menos parcialmente.**

WITH over 646 valid species, the suckermouth armored catfish family Loricariidae is the largest catfish family (Isbrücker, 1980; Burgess, 1989). Much of the diversity of the Loricariidae is in the subfamily Ancistrinae which is identifiable by the presence of evertible plates on the cheek that normally support hypertrophied odontodes and diagnosed by the presence of a bar- or sickle-shaped opercle (Schaefer, 1987; Armbruster, 1997). One recently discovered ancistrine is *Hypancistrus zebra*, described by Isbrücker and Nijssen (1991) from the rio Xingu of Brazil. *Hypancistrus zebra* is one of the most boldly patterned loricariids with black and white stripes on the body and fins, a black bar connecting the eyes, and a bold, black ''E'' on the snout (a black line connecting the two sets of nares with black lines extending straight from the black bar to the snout at each set of nares and down the middle of the snout form the ''E'').

Hypancistrus is phenetically similar to *Peckoltia* (Isbrücker and Nijssen, 1991) although the phylogenetic relationships of *Hypancistrus* have not been explored. Other than the unique color pattern, the only other synapomorphy for *Hypancistrus* given by Isbrücker and Nijssen (1991) in the description of *Hypancistrus* is the differential number of teeth in the upper and lower jaws. In most loricariids, there are approximately an equal number of teeth in the upper and lower jaws, but *Hypancistrus* has more teeth in the upper jaw than the lower jaw. However, differential number of teeth in the upper and lower jaws is not a very useful characteristic to diagnose *Hypancistrus* as the characteristic is widespread in the Loricariidae. In this manuscript, *Hypancistrus* is diagnosed phylogenetically and one new species, *Hypancistrus inspector*, is described.

MATERIALS AND METHODS

Counts and measurements follow Boeseman (1968) and Armbruster et al. (2000). Measurements were taken on the left side of the body for bilaterally symmetrical features unless a structure was damaged. Lateral plate rows on the caudal peduncle were counted at the shallowest part of the caudal peduncle.

Specimens were cleared and stained using the methods of Taylor and van Dyke (1985). Institutional abbreviations are as listed in Leviton et al. (1985). Names of skeletal characteristics are as in Schaefer (1987). Comparative specimens of other loricariids examined are listed in Armbruster (1998).

Hypancistrus Isbrücker and Nijssen, 1991

Type species.—*Hypancistrus zebra* Isbrücker and Nijssen, 1991:348–349, figs. 1–2.

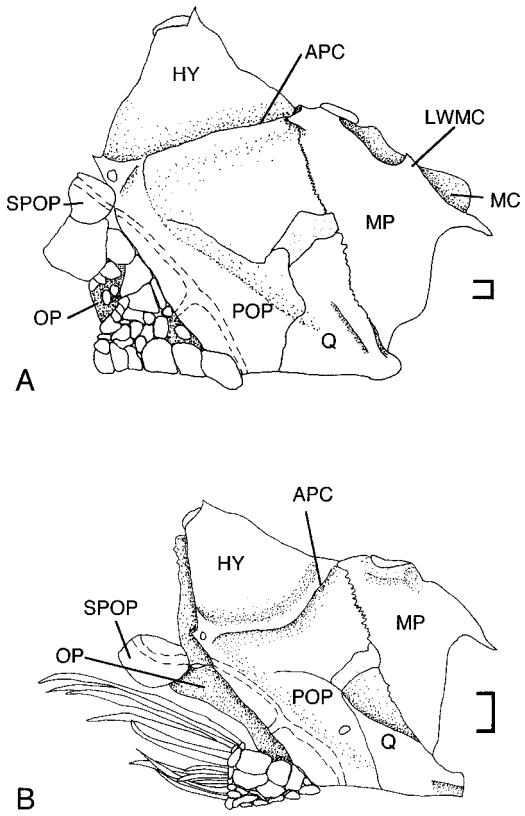

Fig. 1. Suspensorium, lateral view, of (A) *Cochliodon taphorni*, ANSP 168195 and (B) *Hypancistrus inspector*, FMNH 106099. Shaded area is cartilage. Scale = 1 mm. APC, adductor palatini crest; HY, hyomandibula; LWMC, lateral wall of metapterygoid channel; MC, metapterygoid channel; MP, metapterygoid; OP, opercle; POP, preopercle; Q, quadrate; SPOP, suprapreopercle.

Diagnosis.—*Hypancistrus* can be diagnosed by two characteristics unique within the Loricariidae: a wide separation between the metapterygoid and the lateral ethmoid and the presence of a sharply angled adductor palatini crest of the hyomandibula (Fig. 1B). In addition, *Hypancistrus* has a loss of the lateral wall of the metapterygoid channel (Fig. 1B). See Discussion for further information on these characters.

Comparisons.—*Hypancistrus* can be distinguished from all other ancistrines except *Exastilithoxus*, *Leporacanthicus*, *Lithoxus*, *Megalancistrus*, *Oligancistrus*, *Panaque*, *Parancistrus*, most *Peckoltia*, *Pseudacanthicus*, *Scobinancistrus*, and *Spectracanthicus* based on the presence of highly angled jaws (dentaries forming an angle with one another of less than 90° vs greater than 90°). *Hypancistrus* can be separated from *Exastilithoxus* by the lack of fimbriae on the lower lip, from *Lithoxus* by not being dorsoventrally flattened, from *Exastilithoxus* and *Lithoxus* by having five rows of plates (vs three) on the caudal peduncle, from *Leporacanthicus* by lacking fimbriae on the upper jaw (vs small, thin, fleshy projections on the upper jaw), from *Leporacanthicus*, *Megalancistrus*, and *Pseudacanthicus* by lacking highly keeled lateral plates (vs odontodes of central row of each plate hypertrophied and forming a keels on the plates), from *Oligancistrus*, *Parancistrus*, and *Spectracanthicus* by having the dorsal fin membrane well separated from the adipose fin spine (vs contacting the adipose fin spine), from *Parancistrus* by lacking fleshy tentacles in the flesh around the dorsal fin and by having the abdomen only partially plated (vs fully plated), from *Panaque* by lacking spoon-shaped teeth (vs medial tooth cusp expanded into a spoon-shaped structure), from *Peckoltia* by having few plates on the abdomen (vs almost completely plated), from *Scobinancistrus* by having the teeth pointed with both cusps almost equal in length in medial teeth (vs elongate spatulate teeth with the medial lobe much longer than the lateral lobe), and from *Spectracanthicus* by having hypertrophied odontodes set on evertible cheek plates (vs hypertrophied cheek odontodes and evertible cheek plates absent).

Range.—Found in the upper río Orinoco and upper río Negro of Venezuela and the rio Xingu of Brazil.

Hypancistrus inspector n. sp.
Figure 2

Holotype.—MCNG 12133, 100.2 mm SL, Venezuela, Amazonas, Dpto. Casiquiare, río Casiquiare, río Negro—río Amazonas drainage, approximately 10 river km above the río Negro (below Solano), 1°58′N, 67°05′W, L. Nico, E. Conde, B. Stergios, G. Aymard, and P. Cardozo, 13 April 1985.

Paratypes.—AUM 31019, 86.3 mm SL, same data as holotype. MCNG 37040, 3, 110.7–125.9 mm SL, Venezuela, Amazonas, Dpto. Casiquiare, río Casiquiare, río Negro—río Amazonas drainage at Isla Cuamate upstream of Solano (about 25 km upstream from confluence with río Negro), L. Nico and S. Walsh, 22 January 1998.

Nontypes.—All collections Venezuela, Amazonas, río Orinoco drainage, B. Chernoff, A. and D. Machado, and J. Wheeler: FMNH 106009, 5, 1 cleared and stained, 48.8–61.2 mm SL, río Ventuari, south side of river approximately 0.5 h (approximately 12 km) above mouth in río Ori-

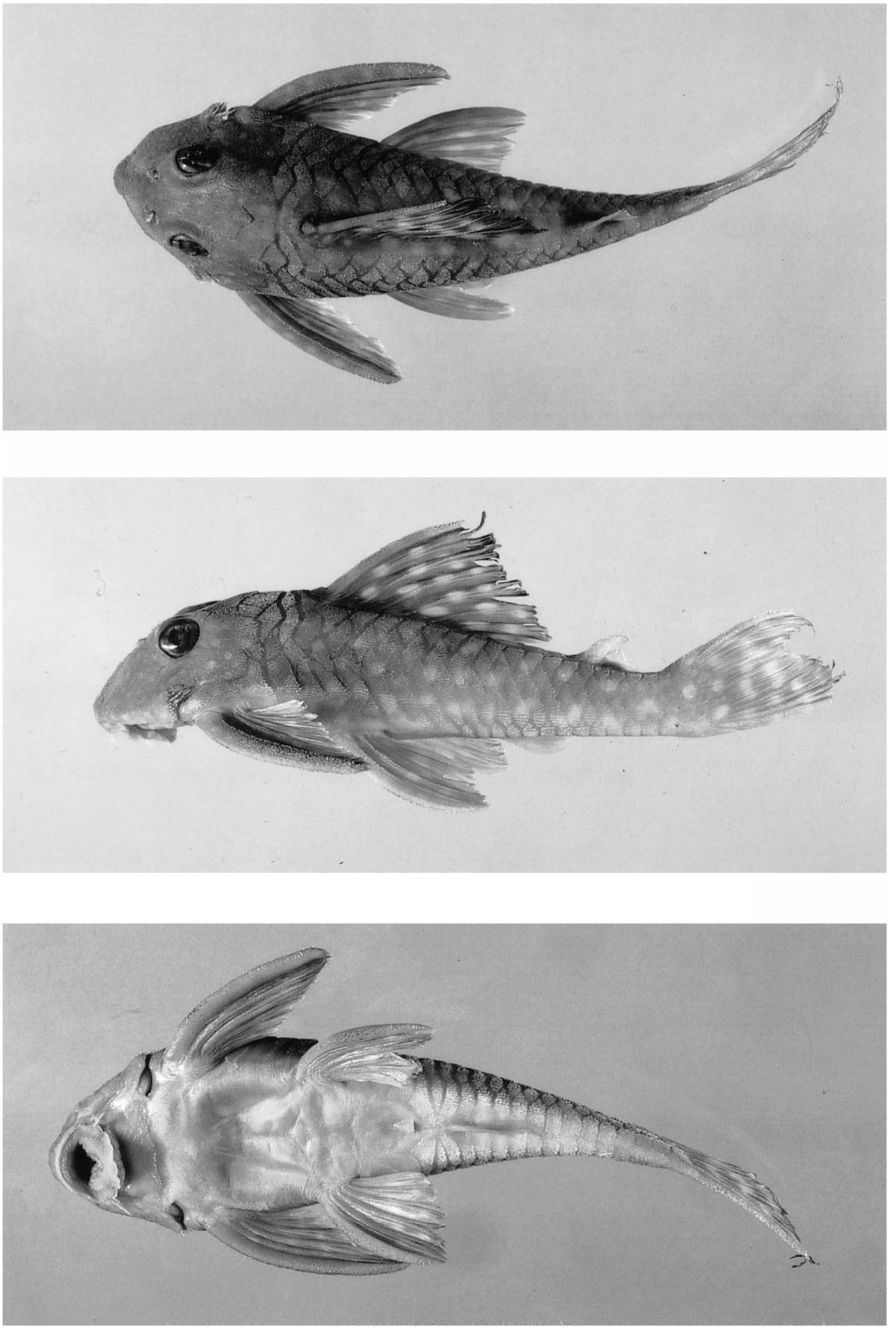

Fig. 2. *Hypancistrus inspector* new species, dorsal, lateral, and ventral views, holotype, MCNG 12133, 100.2 mm SL. Photos by J. W. Armbruster.

noco, Laguna Pavón, 4°4′N, 66°56′W, 24 January 1991; FMNH 106010; 54.1 mm SL, río Orinoco, 5 h above Atabapo by falca, at rocks and beach, 23 January 1991; FMNH 106012, 5, 1 cleared and stained, 45.9–54.1 mm SL, río Orinoco, Isla Cupaven, rocks and rapids, 29 January 1991.

Diagnosis.—*Hypancistrus inspector* differs from *H. zebra*, its sole congener, by being brown to black with large white to yellow spots on the sides (vs boldly contrasting black and white stripes).

Description.—*Hypancistrus inspector* is a medium-sized loricariid (largest specimen examined 125.9 mm SL). Ventral surface from anus to head largely naked in adults, few small platelets located in skin ventral to pectoral girdle, anteromesially to gill opening, and along sides of abdomen. Abdomen generally without small platelets in juveniles. Lateral plates unkeeled although ventral row of plates may have moderately elongate odontodes forming one or more keel-like rows on caudal peduncle. Cheek plates with 20–40 hypertrophied odontodes in adults, longest odontode reaching almost to posterior edge of cleithral process; cheek odontodes and supporting plates evertible at an angle greater than 75° from head. Distal tip of pectoral-fin spines with moderately elongate odontodes anterodorsally.

Frontal, infraorbitals, nasal, preopercle, pterotic-supracleithrum, and suprapreopercle supporting odontodes. Juveniles typically without odontodes on opercle; adults with either 0–3 odontodes or large patch of odontodes (20+) on opercle (see Discussion).

Caudal fin emarginate, lower lobe longer than upper. Lower surface flat. Head tall with horizontal distance between anterior of eye and tip of snout short. Head with steep angle from tip of snout to anterior margin of eye. Body depth from anterior margin of eye to maximum depth at anterior insertion of dorsal fin increasing little. Body depth decreases slowly from anterior dorsal fin insertion to posterior adipose fin insertion; body depth increases slightly from posterior adipose fin insertion to caudal fin insertion. Dorsal surface of head between eyes strongly concave. Eye large (Table 1) with well-developed dorsal flap of iris (in some specimens flap almost absent). Gill opening restricted.

Dorsal fin spine short (Table 1); dorsal fin reaching at least to preadipose plate or to anterior of adipose fin spine when depressed. Depressed pectoral fin spine reaching beyond base of pelvic-fin rays; depressed pelvic fin spine reaching anal fin. Dorsal fin II7, Caudal fin I14I, anal fin I3–4 (only one individual examined with 3 anal fin rays), pectoral fin I6, pelvic fin I5.

Lips papillose, forming oval disk, disk much narrower than head. Maxillary barbel long in comparison to other loricariids, thin, and pointed; barbel rugose proximally, almost smooth distally.

Morphometrics given in Table 1. Lateral line plates 22–24; plates below dorsal fin 7–8; interdorsal plates 3–5; adipose caudal plates 8–10; postanal plates 11–13; 5 rows of plates on the caudal peduncle. Dentary teeth 4–10 (mode = 5, n = 31 dentaries), long, bicuspid, lateral cusp almost as large and as wide as medial cusp. Premaxillary teeth 6–15 (mode = 11, n = 32 premaxillas), shorter than dentary teeth, bicuspid, lateral cusp shorter and thinner than medial cusp; premaxillary tooth number decreases with size (Fig. 3).

Color in alcohol.—Brown to black with large, sparse yellow to white spots on sides; spots relatively small on head, spots become larger posteriorly. Dorsal, caudal, and paired fins colored as sides, spots on dorsal and caudal fin roughly forming bands. Paired fins darker dorsally than ventrally. Adipose fin spine dark, occasionally with spots; adipose fin membrane hyaline. Abdomen with few, scattered chromatophores, almost white. Ventral surface of caudal peduncle darker than rest of ventral surface but not as dark as sides. Upper lip dark except for light band posteriorly. Juveniles colored as adults, except with fewer, relatively larger spots.

Range.—Known only from the upper río Orinoco and upper río Negro drainages, Amazonas, Venezuela (Fig. 4).

Ecology.—Collected from rocks and rapids. Gut contents reveal that in addition to algae and detritus, *H. inspector* also consumes seeds. Dicotyledonous seeds were separated into the two cotyledons while monocotyledenous seeds were apparently crushed.

Discussion

Examination of specimens of *H. inspector* reveals that the differential number of teeth in the upper and lower jaws is not a synapomorphy for *Hypancistrus*. Although juvenile *H. inspector* do have a differential number of teeth in the jaws, adult *H. inspector* have the same number of teeth in the upper and lower jaws with the number of premaxillary teeth decreasing with size (Fig. 3).

TABLE 1. SELECTED MORPHOMETRIC FEATURES OF *Hypancistrus inspector*.

	n	Holotype	Mean ± SD	Range
SL (mm)		100.2	69.1 ± 28.0	45.9–125.9
% SL				
Predorsal length	16	41.4	42.3 ± 1.5	38.6–44.3
Head length (HL)	16	34.5	35.6 ± 2.9	28.0–39.4
Snout–pectoral length	16	24.4	26.0 ± 1.1	24.5–28.6
Thorax length	16	22.6	22.5 ± 1.6	19.7–25.5
Pectoral spine length	16	34.2	34.9 ± 1.3	32.6–37.3
Abdomen length	16	25.1	24.1 ± 1.3	21.3–26.4
Pelvic spine length	16	27.5	28.8 ± 2.0	25.6–32.1
Postanal length	16	31.0	30.7 ± 0.9	29.1–32.1
Anal fin length	16	12.9	13.2 ± 1.3	11.3–16.4
Caudal depth	16	9.8	10.1 ± 0.6	9.0–10.7
Adipose spine length	16	8.6	8.9 ± 0.9	6.6–10.3
Adipose–caudal distance	16	16.6	14.6 ± 1.4	11.9–16.7
Interdorsal distance	16	16.1	13.7 ± 1.8	11.2–17.1
Base of dorsal length	16	27.3	26.6 ± 1.4	24.3–30.3
Dorsal spine legnth		32.4	30.3 ± 2.2	28.5–35.9
Head depth	16	21.4	21.2 ± 1.0	19.6–23.3
Dorsal–pectoral distance	16	26.4	26.2 ± 1.1	24.7–27.6
Dorsal–pelvic distance	16	23.6	22.3 ± 1.7	18.5–24.7
Pelvic–dorsal distance	16	29.0	28.4 ± 1.8	25.5–32.3
Dorsal–anal distance	16	15.8	14.4 ± 1.3	12.5–16.5
Adipose–anal distance	16	18.9	18.7 ± 1.1	16.3–20.2
Anal fin width	16	16.6	15.0 ± 1.5	12.4–17.6
Cleithral width	16	29.0	30.2 ± 1.3	28.4–32.4
% HL				
Head–eye length	16	32.0	36.8 ± 4.4	30.9–47.2
Orbit length	16	23.5	25.7 ± 3.0	22.2–35.3
Snout length	16	57.6	57.1 ± 5.5	51.3–74.4
Eye–nare distance	16	12.8	14.0 ± 1.9	11.2–19.6
Snout–nare distance	16	38.8	39.4 ± 4.3	33.5–53.3
Internares distance	16	10.3	10.9 ± 1.2	9.3–14.5
Interorbital distance	16	26.0	27.7 ± 3.0	25.0–37.3
Eye height	16	24.9	25.6 ± 3.0	21.2–34.2
Mouth width	11	59.1	66.5 ± 7.5	57.7–86.5
Mouth length	15	70.8	73.4 ± 6.7	68.9–94.1
Dentary length	16	65.4	63.8 ± 8.1	51.6–85.1

The seemingly contradictory states of having either 0–3 or 20 or more odontodes on the opercle in *H. inspector* can probably be explained as sexual dimorphism. Although sex cannot be distinguished externally in *H. inspector*, many species of *Peckoltia* also have a divergent number of odontodes on the opercle. Sex in these species of *Peckoltia* can be distinguished because males have hypertrophied odontodes on the lateral plates, and it is the adult males that have no or few odontodes on the opercle.

Three synapomorphies were found to unite *H. zebra* with *H. inspector*: a widely separated metapterygoid and lateral ethmoid, the presence of a sharply angled adductor palatini crest of the hyomandibula (Fig. 1B), and the loss of the lateral wall of the pterygoid channel (Fig. 1B). The angled adductor palatini crest and widely separated metapterygoid and lateral ethmoid are unique among loricariids. In loricariids, the anterior margin of the metapterygoid is held tightly to the lateral ethmoid by a ligament or the two bones contact with a suture (Schaefer, 1986, 1987; Armbruster, 1997). *Hypancistrus* is unique among the Loricariidae in that the anterior ligamentous connection between the metapterygoid and the lateral ethmoid is weakened and the bones are widely separated. This represents a

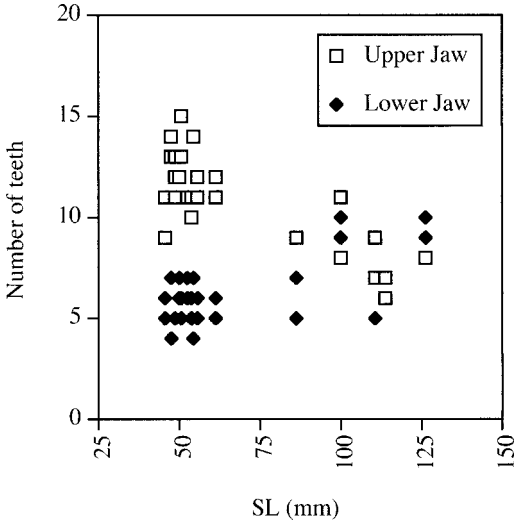

Fig. 3. Plot of teeth in the upper and lower jaws showing equilibration of tooth number in the two jaws in larger specimens.

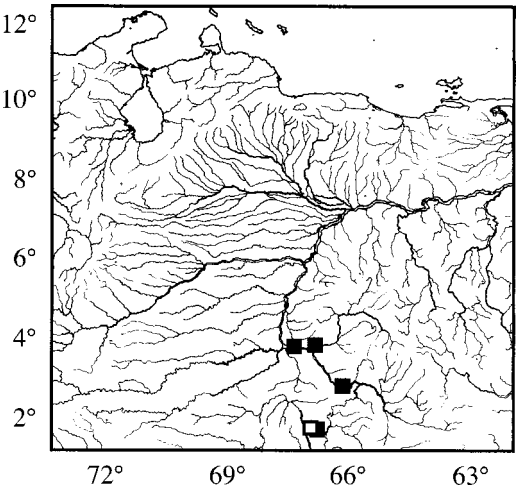

Fig. 4. Distribution of *Hypancistrus inspector*. Open symbol is type locality.

reversal to the condition seen in most other catfish families.

Most loricariids have a laminar process dorsolaterally on the metapterygoid that creates a channel (the metapterygoid channel) through which the levator arcus palatini muscle passes. The lateral wall of the metapterygoid channel is completely lost in *Exastilithoxus*, *H. inspector*, *Lithoxus*, and *Scobinancistrus* and is present as a ridge in *H. zebra*, *Megalancistrus*, and *Spectracanthicus*. The lateral wall of the pterygoid channel is also lost in some species of the Loricariinae (Schaefer, 1986, 1987) and some, but not all, species of *Neoplecostomus* (Neoplecostominae; Armbruster, 1997). In addition, *Delturus* and *Upsilodus* (= *Hemipsilichthys gobio*) lack the lateral wall of the metapterygoid channel, but this is probably a symplesiomorphy (Armbruster, 1997) and the lack of the lateral wall of the metapterygoid channel is a symplesiomorphy. Based on the phylogenies of Schaefer (1986) and Armbruster (1997), the loss of the lateral wall of the metapterygoid channel in *Hypancistrus* is not homologous to that of any of the other loricariids.

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