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Hisonotus candombe, a new species from the río Uruguay basin in the República Oriental del Uruguay

(Siluriformes, Loricariidae, Otothyrini)

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Hisonotus candombe, spec. nov. is described from arroyos Palomas and Catalán Grande, río Uruguay basin, in the República Oriental del Uruguay. *Hisonotus candombe* is distinguished by the following combination of characters: presence of heavy serrae along complete posterior pectoral spine margin, presence of narrow odontodes free area along anterior margin of snout, 5 anal-fin branched rays, lateral line canal incomplete and discontinuous with an anterior field bearing 2-7 pores and posterior field with 8-19 pores.

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Introduction

Since the original description of *Hisonotus* by Eigenmann & Eigenmann (1889), many species of this genus have been considered as species of the genera *Otocinclus* or *Microlepidogaster*. Subsequently, Schaefer (1998) redefined the genus *Hisonotus* based on the absence of plates anterior to nostrils and the presence of rostral plates with large odontodes and proposed the inclusion of several species of *Microlepidogaster* and *Otocinclus* within the genus *Hisonotus*.

In southern South America, about 13 species of the genus were found in the rivers Paraguay, Paraná, Uruguay, and Río de la Plata, and Los Patos System. Only two of them are present in the Uruguay river basin, *H.* ringueleti Aquino et al., 2001 and *H. maculipinnis* (Regan, 1912).

The objective of the present contribution is the description of a new species of *Hisonotus* from the río Uruguay basin in the República Oriental del Uruguay.

Methods

Specimens were cleared and counterstained following Taylor & Van Dyke (1985). Measurements were taken as straight line distances using digital callipers following Boeseman (1968). Counts include holotype and 11 paratypes; values of the holotype are indicated by an asterisk. Vertebrae count includes those ones corresponding to the Weberian apparatus and the caudal centrum (CU1+PU1) as one element. Institutional abbreviations are as listed in Leviton et al. (1985) with the addition of Asociación Ictiológica, La Plata, Argentina (AI) and Facultad de Ciencias, Universidad de la República, Montevideo, República Oriental del Uruguay (ZVC-P).

Hisonotus candombe, spec. nov.

Figs 1-3, Tab. 1

Types. Holotype: ZVC-P 5595, 29.9 mm SL, República Oriental del Uruguay, Departamento Salto, río Uruguay basin, arroyo Palomas (31°04'43"S–57°37'26W), coll: P. Laurino et al., 17 March 2003. - Paratypes: ZSM 32062,

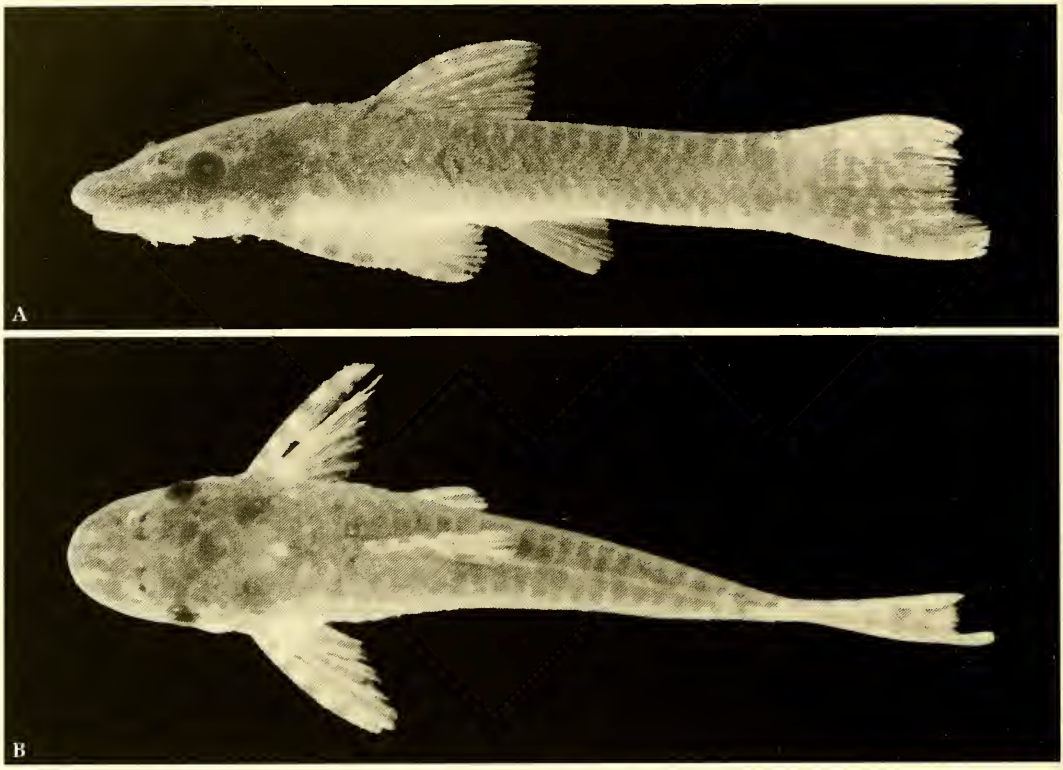

Fig. 1. *Hisonotus candombe*, spec. nov. Holotype, 29.9 mm SL, República Oriental del Uruguay, Departamento Salto, río Uruguay basin, arroyo Palomas. **A.** lateral view. **B.** dorsal view.

3 ex., 23.4-27.4 mm SL, same collecting data as holotype. AI 164, 1 ex., 27.2 mm SL, same collecting data as holotype. MHNG 2662.86, 2 ex. 26.0-26.3 mm SL, same collecting data as holotype. AI 187, 4 ex., 22.8-30.0 mm SL, República Oriental del Uruguay, Departamento Artigas, río Uruguay basin, arroyo Catalán Grande (30°50'35"S – 56°14'30"W), coll: P. Laurino et al., 16 August, 2002.

Diagnosis. *Hisonotus candombe*, spec. nov. is diagnosed by the following combination of characters: presence of heavy serrae along complete posterior pectoral spine margin, presence of narrow odontode free area along anterior margin of snout, 5 anal-fin branched rays, lateral line canal incomplete and discontinuous with an anterior field bearing 2-7 pores and posterior field with 8-19 pores.

Description

Morphometrics of holotype and 11 paratypes are presented in Tab. 1. Body slightly elongate, head depressed (Fig. 1A). Greatest body depth at dorsal fin origin. Dorsal profile of head from snout tip to orbital level slightly concave, straight over supraoccipital. Snout tip rounded in dorsal view (Fig. 1B). Rostral median plate with notch. Naked area anterior to anterior nares. Head slightly wider than trunk. Eyes placed dorsolaterally, horizontal eye diameter longer than suborbital depth and as large as nare diameter. Iris diverticulum present, about one third of pupil diameter. Three infraorbitals surrounding orbit, fourth infraorbital expanded ventrally. Margins and surface of lips covered with papillae. Maxillary barbels short. Jaw teeth bifid; teeth slender with their major cusp slightly expanded and rounded tip, and a minor cusp pointed. Absence of accessory teeth on premaxilla and dentary. One series of teeth, 6-15 (mode 12) on premaxilla and 6-13 (mode 8) on dentary. Pterotic-supracleithrum bearing openings. The preopercular sensory canals directed toward pterotic-supracleithrum.

Body covered by dermal plates except some areas on ventral region. Abdominal area with two series of lateral plates and some ones distributed in middle region. Lateral and anterior rostral plates reflected ventrally. Five lateral series of plates on trunk. Plates of dorsal series continuous; mid-dorsal series continuous and incomplete; median series discontinuous and complete with 22-24 (mode 23*); mid-ventral series complete and continuous; ventral

series continuous and incomplete. Lateral line discontinuous with one gap, anterior field with 2-7 (3*, mode 6), and posterior field with 8-19 (12*,mode 15) pores. First lateral line plate small, second one placed on rib of sixth vertebra. Anal fin preceded by 3 or 4 pairs of ventral plates and one unpair plate. Coracoid and cleithrum exposed ventrally, excluded arrector fossae area. Two pairs and one unpaired predorsal plates.

Odontodes covering head, trunk, and fin rays. Head and trunk odontodes uniformely distributed. Odontodes usually small on body and pelvic spines, large ones on pectoral spine. A tuft of large odontodes at posterior supraoccipital tip. Large odontodes along anterior margin of snout biserially arranged, dorsad and ventrad series separated by a naked area.

Dorsal fin with one spine and 7* (one specimen with 8) branched rays, its origin placed posterior to vertical through pelvic-fin origin. Dorsal fin moved posteriorly behind seventh vertebra. First dorsal-fin proximal radial articulated with eighth vertebra. Adipose fin absent. Pectoral fin with one spine bearing heavy serrae along its posterior margin (Fig. 2), and 5 to 6 branched rays (10* ex. with 5; 2 ex. with 6); distal tip of pectoral fin surpassing more than 50 % of pelvic-fin length. Pectoral-fin axillary slit present. Pelvic fin with one spine and 5 branched rays, surpassing scarcely anal-fin origin in males. Presence of small fleshy flap on pelvic fin in males. Anal fin with one spine and 5 branched rays. Caudal fin with fourteen branched rays.

Color in alcohol: Ground color of dorsum and flanks of body pale brown, ventral surface of head and trunk whitish. Narrow light stripe from snout tip to eye and from eye to lateral tip of postemporo-supracleithrum. Dorsum of body, upper third of flanks, and head light, with reddish brown dots. A light area on each flank, extending from supraoccipital margin to middle caudal peduncle. Dorsum between last dorsal-fin ray insertion and base of caudal-fin rays with a narrow whitish line. Head with three whitish dots, one on tuft and remaining ones on lateral posterior tip of postemporo-supracleithrum. Also, a light dot on first dorsal spine. Preopercle, opercle, and cleithrum whitish.

Pectoral, pelvic, anal, and dorsal fins whitish, with dots forming series of darker bands, somewhat diffuse on pelvic fin. Caudal fin pale brown with about 4 or 5 dark vertical stripes; light areas on 4 or 5 uppermost and 2 lowermost caudal-fin rays.

Color in life: ground color of dorsum and flanks bright green, ventral surface of head and trunk pale yellowish. Narrow light stripes from snout tip to eye and from eye to lateral tip of postemporo-supracleithrum. Dorsum of body, upper third of flanks, and head light, with dark reddish brown dots. Pectoral-fin spine and externalmost caudal-fin rays stripped with brown and whitish bands. Caudal fin brown with about 4 or 5 dark vertical stripes; translucent areas on upper and lower caudal-fin lobes.

Fig. 2. *Hisonotus candombe,* spec. nov. Pectoral spine showing the serrae on the posterior margin of the spine (×50).

Sexual dimorphism. Pelvic-fin spines of males longer than that of females (18.3-21.7 vs. 16.4-18.0 % SL; 7 females and 5 males). Distal tip of pelvic fins surpassing anal-fin origin in males. Males with flap

Tab. 1. Morphometric data of the holotype and 11 paratypes of *Hisonotus candombe*. H. holotype.

	H	Range	Mean	SD
Standard length (mm)	29.9	22.8-30.0		
Percents of SL				
Predorsal distance	43.5	42.7-48.2	45.3	1.71
Head length	34.8	34.8-38.2	36.8	1.15
Cleithral width	22.1	21.9-24.7	22.9	0.84
Dorsal-fin spine length	23.7	23.7-28.1	26.2	1.61
Trunk length	15.7	15.0-18.7	16.8	1.19
Pectoral-fin spine length	24.1	24.1-29.3	26.5	1.77
Pelvic-fin spine length	16.4	16.4-21.7	18.1	1.50
Abdominal length	20.1	19.5-23.5	21.3	1.29
Caudal peduncle length	33.4	29.3-34.0	31.9	1.50
Caudal peduncle depth	13.0	13.0-14.9	13.9	0.65
Head depth	16.4	16.4-19.7	17.7	1.06
Snout length	16.7	16.7-18.9	17.8	0.71
Horizontal eye diameter	5.7	5.4- 7.0	6.4	0.48
Interorbital width	13.4	12.5-14.8	13.8	0.68
Percents of HL				
Head depth	47.1	43.7-54.2	48.3	2.90
Snout length	48.1	45.0-51.8	48.3	1.94
Horizontal eye diameter	16.3	15.0-19.3	17.4	1.18
Interorbital width	38.5	34.0-41.1	37.4	1.83
Cleithral width	63.5	60.6-64.8	62.1	1.39

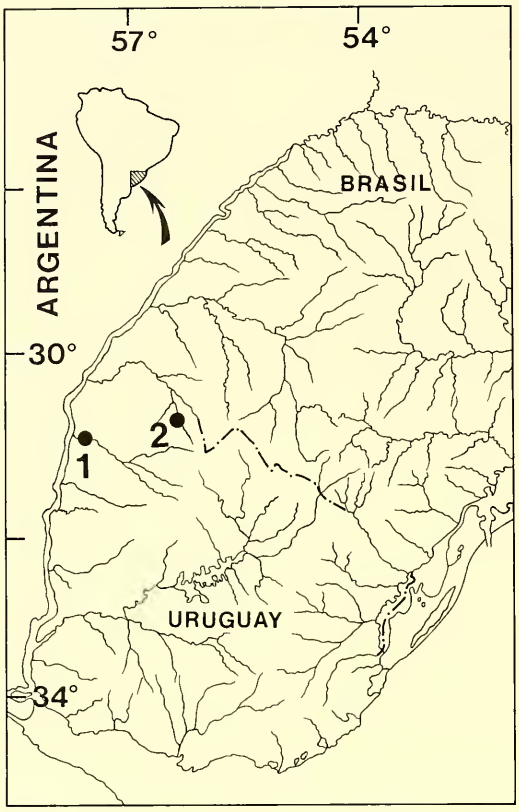

Fig. 3. *Hisonotus candombe* spec. nov.; localities: 1: arroyo Palomas (type locality), 2: arroyo Catalán Grande; río Uruguay basin, República Oriental del Uruguay.

on first branched ray of pelvic fin. Abdominal region of males naked, females with few plates on midline. Genital papilla of males longer, slender and more acute than that of females. Preanal region without median plates in males.

Etymology. The specific epithet *candombe* is a spanish word that refers to the African derived rhythm that was popularized in the nineteenth century by black slaves in the República Oriental del Uruguay.

Distribution and habitat. This species is known from the arroyos Palomas, Departamento Salto, and Catalán Grande, Departamento Artigas, both streams belong to the río Uruguay basin (Fig. 3). The type locality is a small, shallow creek with muddy soil and clear, slow-flowing water (Fig. 4). *Hisonotus candombe* was only collected inbetween aquatic plants as *Ludwigia* sp. and *Potamogeton* sp., and on leaves of terrestrial plants hanging into the water. Near the place where specimens were collected other creeks have rocky bottom, loose stones and rapid current water. Moderate amounts of grass and other vegetation were present in the margins. The arroyo Catalán Grande is a creek with regions of rapid and slow flowing water, with loose stones, and gravel at the bottom; dense vegetation is present in the margins. *Hisonotus candombe* was collected here within *Echinodorus uruguayensis*, densely growing on some places.

The environmental variables in the arroyo Catalán Grande were: air temperature 18-20 °C; water temperature 11.5-17 °C; pH 7.2; conductivity 160-200 µS/cm. In the arroyo Palomas, the same variables measured were: air temperature 24 °C; water temperature 24 °C; pH 7.7; conductivity 300 µS/cm.

Behaviour in aquarium. *Hisonotus candombe* is reported to behave just as most Hypoptopomatinae species wich have been known in aquaria for many years. It is a peacefull species that usually hangs on *Echinodorus* sp., *Sagittaria* sp., or similar aquarium plants. The bright green color of the body vanished after about a half year changing to greyish brown.

Remarks. Six species of *Hisonotus* have been described from the southern area of the Río de La Plata basin and Lagoa dos Patos system, *H. laevior*, *H. leptochilus*, *H. nigricauda*, *H. maculipinnis*, *H. ringueleti*, and *H. taimensis*.

Hisonotus candombe is differentiated from all those species, excluded *H. ringueleti*, in having an odontode free area along the anterior margin of the snout. Also, *H. candombe* differs from *H. taimensis*, *H. leptochilus*, and *H. laevior* by the lower number of lateral plates (22-24 vs. 26-31 in *H. taimensis* and 28 plates in *H. leptochilus* and *H. laevior*).

Hisonotus candombe shares with *H. ringueleti* the odontode free area along the anterior margin of the snout and posterior margin of the pectoral spine serrated. However, *H. candombe* differs from *H. ringueleti* in having larger pectoral spine serrae distributed all along the posterior margin. In *H. ringueleti* the serrae are smaller and placed on distal two thirds of posterior margin of pectoral spine. *Hisonotus candombe* has five branched anal-fin rays and males with smaller flap on pelvic fin whereas *H. ringueleti* bears 4 anal-fin rays and a well developed flap.

Comparative material examined (SL in mm). *Hisonotus* sp. A: AI 171, 3 ex., 21.0-32.2 (C&S), República Oriental del Uruguay, Departamento Canelones, Río de la Plata basin, arroyo Tropa Vieja. *Hisonotus candombe* sp. n.: AI 177, 1 ex., 29.7 (C&S), República Oriental del Uruguay, Departamento Salto, río Uruguay basin, arroyo Palomas. *Hisonotus maculipinnis* (Regan, 1912): AI 122, 1 ex., 27.5 (C&S), Argentina, Corrientes province, río Paraná, lta Ibaté. AI 123, 5 ex., 23.4-27.0, Argentina, Corrientes province, río Paraná basin, Esteros del Iberá, Rincón del Diablo, Laguna Yacaré. *Hisonotus nigricauda* (Bouleng-

Fig. 4. Arroyo Palomas, type locality of *Hisonotus candombe* spec. nov.

er, 1891): AI 178, 6 ex., 30.0-38.0, Brazil, Rio Grande do Sul, São Leopoldo, Yacuí, rio dos Sinos. *Hisonotus* sp. B, AI 120, 1 ex., 23.3, Argentina, Misiones, río Uruguay basin, arroyo Oveja Negra. *Hisonotus* sp. C: MHNG 2408.025, 10 ex., 17.8-29.0, Paraguay, route 2, arroyo Pirayu. *Hisonotus ringueleti* Aquino, Schaefer & Miquelarena, 2001: AI 179, 1 ex., 36.4, República Oriental del Uruguay, Departamento Artigas, río Uruguay basin, arroyo Lenguazo. *Hypoptopoma inexspectatum* (Holmberg, 1893): AI 119, 1 ex., 35.0, Argentina, Corrientes province, río Paraná, Puerto Abra. *Otocinclus flexilis* Cope, 1894: AI 117, 2 ex., 36.0-36.5, Argentina, Entre Ríos province, arroyo Ñancay. *Otocinclus vestitus* Cope, 1872: AI 118, 3 ex., 26.0-30.4, Argentina, Corrientes province, río Paraná, Puerto Abra. *Otocinclus vittatus* Regan, 1904: AI 121, 1 ex., C&S, 27.0, Argentina, Corrientes province, río Paraná, Ita Ibaté. AI 127, 1 ex., 26.2, Argentina, Buenos Aires province, Río de la Plata basin, arroyo El Pescado. *Epactionotus yasi* Almirón, Azpelicueta & Casciotta, 2004: MACN-ict 8649, 1 ex., 32.0, Argentina, Misiones province, río Iguazú basin, arroyo Lobo. *Epactionotus aky* Azpelicueta, Casciotta, Almirón & Körber, 2004: AI 124, holotype, 30.5, Argentina, Misiones province, río Uruguay basin, Arroyo Garibaldi.

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