

***Hisonotus hungy* sp. n. (Siluriformes, Loricariidae) a new species from arroyo Tirica, Misiones, Argentina**

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***Hisonotus hungy* sp. n. (Siluriformes, Loricariidae) a new species from arroyo Tirica, Misiones, Argentina.** - *Hisonotus hungy* sp. n. is described from the arroyo Tirica, río Paraná basin in Misiones province, Argentina. *Hisonotus hungy* sp. n. is diagnosed by the following combination of characters: 20-22 lateral plates, 5 branched anal-fin rays, absence of pad on snout tip, blunt and deep snout, snout 45.5-50.9 (% in HL), eye 13.4-17.1 (% in HL), predorsal unpaired plates absent; vent completely covered by two rows of large lateral platelets and one median series with irregular plates.

Keywords: Freshwaters fish - loricariids - Hypoptopomatinae - *Hisonotus* - South America - río Paraná basin.

INTRODUCTION

The arroyo Uruguay together with the río Iguazú are the main tributaries of the río Paraná in the province of Misiones, Argentina. Eight kilometers from the confluence with the río Paraná, a hydroelectric dam was built at the end of the eighties. Before the construction of the dam, several collecting trips had been done which resulted in the description of new species such as *Oligosarcus menezesi* Miquelarena & Protogino, 1996; *Bryconamericus sylvicola* Braga, 1988; *Australoheros tembe* (Casciotta, Gómez & Toresani, 1995); *Gymnogeophagus che* Casciotta, Gómez & Toresani, 2000, and *Astyanax leonidas* Azpelicueta, Casciotta & Almirón, 2002.

The lake formed by the dam receives several streams; the arroyo Tirica is one of the smaller ones flowing into the lake from the south.

The aim of this paper is to describe a new species of *Hisonotus* recently collected from the arroyo Tirica, arroyo Uruguay basin.

MATERIAL AND METHODS

Specimens were cleared and counterstained following Taylor & Van Dyke (1985). Measurements were taken as straight line distances using digital calliper to the nearest 0.1 mm. Values of the holotype are indicated by an asterisk. Institutional

abbreviations are as listed in Leviton *et al.* (1985) with the addition of Asociación Ictiológica, La Plata, Argentina (AI) and Zoología Vertebrados, Facultad de Ciencias, Universidad de la República, Montevideo, Uruguay (ZVC-P).

COMPARATIVE MATERIAL EXAMINED (SL IN MM): *Hisonotus candombe* Casciotta, Azpelicueta, Almirón & Litz, 2006: ZVC-P 5595, holotype, 29.9, República Oriental del Uruguay, Departamento Salto, río Uruguay basin, arroyo Palomas. AI 177, 1 ex. (C&S) 29.7, same collecting data. – *Hisonotus charrua* Almirón, Azpelicueta, Casciotta & Litz 2006: ZVC-P 5639, holotype, 50.7, República Oriental del Uruguay, Departamento Tacuarembó, río Uruguay basin, Cañada de Los Peña. AI 171, 3 ex., 21.0-32.2 (C&S), República Oriental del Uruguay, Río de la Plata basin, arroyo Tropa Vieja, Departamento Canelones. – *Hisonotus maculipinnis* (Regan, 1912): AI 122, 1 ex., 27.5 (C&S), Argentina, Corrientes province, río Paraná, Ita Ibaté. AI 123, 5 ex., 23.4-27.0, Argentina, Corrientes province, río Paraná basin, Esteros del Iberá, Rincón del Diablo, Laguna Yacaré. – *Hisonotus cf. laevior* Cope, 1894: AI 178, 6 ex., 30.0-38.0, Brasil, Rio Grande do Sul, São Leopoldo. Rio Jacuí basin, rio dos Sinos, 29°45'S - 51°10'W. – *Hisonotus paulinus* (Regan, 1908): BMNH 1907.7.6.9, holotype, Brasil, rio Piracicaba, São Paulo (examined by J. MacLaine, Natural History Museum, London). – *Hisonotus* sp. A, AI 120, 1 ex., 23.3, Argentina, Misiones, río Uruguay basin, arroyo Oveja Negra. – *Hisonotus* sp. B: MHNG 2408.025, 10 ex., 17.8-29.0, Paraguay, route 2, arroyo Pirayú. *Hisonotus ringueleti* Aquino, Schaefer & Miquelarena, 2001: AI 179, 1 ex., 36.4, República Oriental del Uruguay, Departamento Artigas, río Uruguay basin, arroyo Lenguazo. – *Hisonotus taimensis* (Buckup, 1981): AI 216, 7 ex., 38.6-55.0, República Oriental del Uruguay, Rocha, arroyo Las Conchas, 34°24.05'S-54°17.05'W. – *Epactionotus aky* Azpelicueta, Almirón, Casciotta & Koerber, 2004: AI 124, holotype, 30.5, Argentina, Misiones province, río Uruguay basin, arroyo Garibaldi. – *Epactionotus yasi* Almirón, Azpelicueta & Casciotta, 2004: MACN-ict 8649, holotype, 1 ex. 32.0, Argentina, Misiones province, río Iguazú basin, arroyo Lobo.

RESULTS

Hisonotus hungy sp. n.

Fig 1, Table 1

HOLOTYPE: MACN-ict 8860, 35.7 mm SL, Argentina, Province of Misiones, río Paraná basin, arroyo Tirica, affluent of arroyo Urugua-í (26°01'S - 55°22'W), coll: S. Koerber, R. Filiberto, J. O. Fernández Santos, 5 January 2001.

PARATYPES: same collecting data as holotype: AI 189, 5 ex., (1 C&S) 31.5-37.6 mm SL; ZFMK 39472-75, 4 ex., 30.4-42.0 mm SL; MHNG 2664.79, 2 ex., 31.9-37.0 mm SL; ZSM 33313, 2 ex., 33.3-36.7 mm SL.

DIAGNOSIS: *Hisonotus hungy* sp. n. is diagnosed by the following combination of characters: 20-22 lateral plates, 5 branched anal-fin rays, absence of pad on snout tip, blunt and deep snout. snout 45.5-50.9 (% in HL), eye 13.4-17.1 (% in HL), predorsal unpaired plates absent; vent completely covered by two rows of large lateral platelets and one median series with irregular plates.

DESCRIPTION: Morphometrics of holotype and 13 paratypes are presented in Table 1. Body elongated, head deep and short (Fig. 1). Greatest body depth at dorsal-fin origin. Head as wide as trunk. Dorsal profile of head convex from snout tip to dorsal-fin origin. Snout tip rounded in dorsal view, without enlarged odontodes. One pair of rostral median plates without notch. Several plates placed in anterior area of nares, leaving a narrow naked surface. Eyes placed dorsolaterally, horizontal eye diameter shorter than nare diameter. Iris diverticulum present, about half 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, tooth slender with major cusp expanded distally and a very minor one pointed.

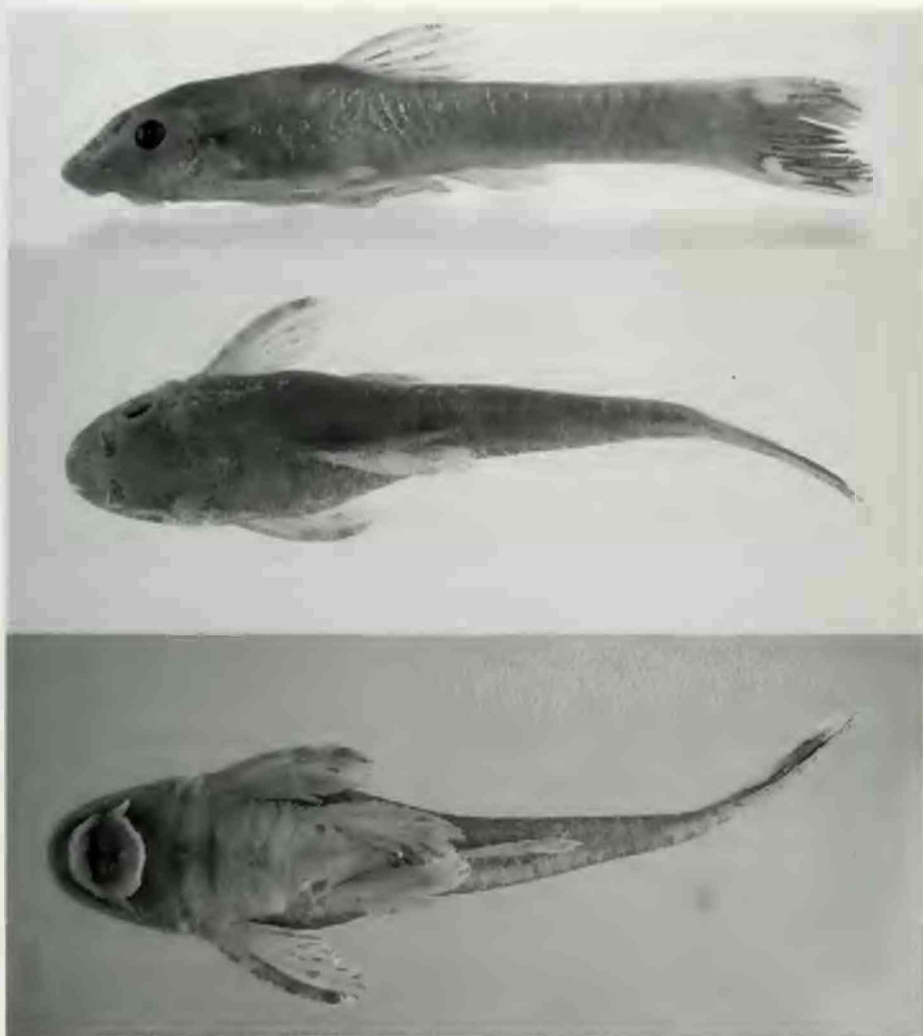


FIG. 1

Hisonotus hungy sp. n., holotype, 35.7 mm SL, Argentina, Province of Misiones, río Paraná basin, arroyo Tirica (26°01'S - 55°22'W), lateral, dorsal, and ventral views.

Absence of accessory teeth on premaxilla and dentary. One series of teeth, 10-17 (mode 12) on premaxilla and 8-15 (mode 11) on dentary. Pterotic-supracleithrum bearing large openings. Preopercular sensory canal directed towards pterotic-supracleithrum.

Body covered by dermal plates except for a naked area around base of pelvic fins, lateral opening of swimbladder capsule, and area between pectoral girdle and lower lip. Posrostral and anterior rostral plates slightly reflected ventrally. Five lateral series of plates on trunk. Plates of dorsal series continuous; mid-dorsal series

TABLE 1. Morphometric data of the holotype and 13 paratypes of *Hisonotus hungy* sp. n. SD: standard deviation.

	Holotype	Range	Mean	SD
Standard length (mm)	35.7	30.4-42.3		
Percents of SL				
Predorsal distance	42.9	42.2-46.8	44.6	1.69
Head length	32.8	31.1-35.8	33.8	1.62
Cleithral width	23.5	22.5-26.9	24.9	1.32
Dorsal-fin spine length	22.4	21.1-25.0	23.0	1.29
Trunk length	17.6	15.1-18.4	17.2	0.85
Pectoral-fin spine length	24.6	22.2-27.8	25.2	1.66
First pelvic-fin ray length	20.2	15.4-20.5	18.5	1.63
Abdominal length	19.6	19.6-22.2	20.9	0.92
Caudal peduncle length	34.7	32.0-39.2	35.5	2.34
Caudal peduncle depth	12.0	10.6-13.3	12.1	0.71
Head depth	18.5	16.3-19.4	18.2	0.91
Snout length	15.1	15.0-17.8	16.5	0.95
Horizontal eye diameter	5.3	4.7-5.7	5.2	0.29
Interorbital width	13.4	13.0-14.9	14.0	0.55
Percents of HL				
Head depth	56.4	50.5-56.9	54.0	2.13
Snout length	46.2	45.5-50.9	48.8	1.90
Horizontal eye diameter	16.2	13.4-17.1	15.5	0.88
Interorbital width	41.0	38.4-45.5	41.4	2.21
Cleithral width	71.8	70.9-77.6	73.7	2.22

incomplete, and continuous. Median series 20 (5), 21 (4), 22 (5*). Mid-ventral series incomplete and continuous; plates of ventral series continuous. Plates bearing lateral-line canal incomplete and discontinuous, anterior portion of median series with 4 (5), 5 (7*), 6 (2) perforated plates; posterior portion with 7 (7*), 8 (3), 9 (1), 11(1), 12 (1), and 13 (1) perforated plates. First two lateral line plates small, second one placed on rib of sixth vertebra. Abdomen almost completely covered by plates, arranged in two lateral rows of two or three plates each and a median row with several plates irregularly arranged (Fig. 1). Three pairs of post anal plates, first one meeting at midline and last third separated by small external portion of first anal-fin proximal radial. Coracoid and cleithrum exposed ventrally, excluded very small *arrector fossae* area. Absence of unpaired predorsal plates.

Odontodes covering head, trunk, and fin rays. Head and trunk odontodes uniformly distributed. Odontodes usually small on body, except for somewhat enlarged odontodes on ventral margin of snout, on pectoral and pelvic spines, and a tuft formed by a few odontodes in some specimens. Odontodes along anterior margin of snout bi-serially arranged, dorsad and ventrad series not separated by a naked area.

Dorsal fin with one spine and 7 branched rays, its origin 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 and 6 branched rays, reaching nearly half of pelvic-fin length. Very large pectoral-fin axillary slit present. Pelvic fin with one unbranched and 5 branched



FIG. 2

Hisonotus paulinus, holotype BMNH 1907.7.6, Brasil, São Paulo, rio Piracicaba, dorsal, lateral and ventral views.

rays, reaching anal-fin origin in females and surpassing it only in males. Fleshy flaps on pelvic fins of males. Caudal fin with fourteen branched rays.

Neural spine of seventh vertebra contacting nuchal plate partially. Neural arch of seventh vertebra without expansion.

COLOR IN LIFE: Background brown-chocolate, with clear lines between snout and eyes, extending backward to posttemporo-supracleithrum. Ventral margin of snout, area around pectoral and pelvic fin insertions yellowish. Two light dots on caudal fin, upper most and lower most caudal-fin rays light. Dorsal, pectoral, pelvic, and anal fins with dots forming bands.

COLOR IN ALCOHOL: Ground color of dorsolateral body surface brownish, ventral surface of head and body pale brown. In some specimens a narrow light stripe from snout tip to anterior nare, continuing posteriorly, very faint until supraoccipital level. Ventrolateral margin of snout and head light brown. Pectoral, pelvic, dorsal, and anal fins pale brown with dots forming series of darker bands. Caudal fin dark brown

excluded two light triangular dots near half way. Both light dots placed on first three or five dorsal and ventral branched rays. Tip of lower and upper caudal lobes usually light.

SEXUAL DIMORPHISM: Pelvic-fin spines of males longer than that of females (17.7-20.5 vs. 15.4-17.1% SL; 4 females and 10 males). Distal tip of pelvic fins surpassing anal-fin origin in males. Males have fleshy flap on pelvic fins and triangular genital papilla. Females bear rounded and broad genital papilla.

ETYMOLOGY: The specific epithet *hungy* is a guaraní word that means brown. A noun in apposition.

DISTRIBUTION AND HABITAT: This species is only known from the arroyo Tirica, a tributary of the arroyo Urugua-í. The arroyo Tirica, at bridge of provincial road 237-km 29, is a stream with two different environments; one of them had the natural vegetation of the region, whereas in the other one coniferous trees were introduced. *Hisonotus hungy* was collected in the portion of the stream where a plantation of small coniferous let the brook to be exposed completely to sunlight. Photographs of live specimens, the environment, and a map with the geographical distribution are provided by Koerber (in prep.) and Evers & Seidel (2005, sub *H. cf. ringueleti*).

The following species were caught together with *H. hungy* from the arroyo Tirica: *Astyanax eigenmanniorum*, *A. cf. fasciatus*, *A. cf. troya*, *Australoheros tembe*, *Bryconamericus iheringii*, *Characidium* sp., *Corydoras carlae*, *Gymnogeophagus che*, *Heptapterus mustelinus*, *Oligosarcus jenynsii*, *O. paranensis*, and *Schizodon nasutus*.

DISCUSSION

The genus *Hisonotus* includes 16 nominal species (Aquino *et al.*, 2001 and Britski & Garavello, 2003) from different basins in Brasil, Argentina, and Uruguay. Recently, two new species, *H. charrua* and *H. candombe*, have been described from río Uruguay basin (Almirón *et al.*, 2006; Casciotta *et al.*, 2006).

The species described from the upper río Paraná basin are *H. insperatus* Britski & Garavello, 2003, *H. depressicauda* (Miranda Ribeiro, 1918), *H. depressinotus* (Miranda Ribeiro, 1918), *H. paulinus* (Regan, 1908), and *H. francirochai* (Ihering, 1928). *Hisonotus maculipinnis* was recorded in the lower Paraná basin, from "La Plata" without precise locality.

Among the species of *Hisonotus* distributed in the Río de la Plata basin, and Lagoa dos Patos system, *H. hungy* sp. n. differs from all of them – except *H. paulinus* – by the number of lateral plates (20-22 vs. 23-31).

Hisonotus hungy also differs from *H. ringueleti*, *H. charrua*, and *H. candombe* by the absence of soft pad in the snout tip. The other species living in the basin is *H. maculipinnis* which has a large free area in the anterior margin of the snout that is not present in *H. hungy* and the profile of the snout strongly depressed whereas *H. hungy* has a blunt and deep snout.

In spite of papers by Schaefer (1991, 1998) and Aquino *et al.* (2001), the genus *Hisonotus* has not been clearly defined phylogenetically. In addition, the tribe Othothrini diagnosed by Schaefer (1991, 1998) is considered a paraphyletic group at



FIG. 3

Hisonotus hungy sp. n. from arroyo Tirica in aquarium, specimen not preserved.

present (Gauger & Buckup, 2005). Gauger & Buckup (2005) included some new osteological characters to define the genera of Hypoptopomatinae. Considering those characters, *H. hungy* has the mesethmoid covered by prenasal plates, rostral plates wider than long, lateral ethmoid not exposed on dorsal surface of head, infraorbital canal entering in the neurocranium via sphenotic, supraoccipital without crest, pectoral girdle completely exposed, *arrector fossae* reduced to a small area close to midline, mid-dorsal series with about 16 plates, dermal plates of thorax and abdomen large, regularly distributed, thorax and abdomen completely covered by dermal plates, first post anal plate meeting at midline, and neither traces of modifications nor unpaired platelets located in adipose-fin region.

Eschmeyer (2006) indicated Argentina with doubts in the distribution of *Hisonotus paulinus* (Regan, 1908) described from rio Piracicaba, São Paulo, Brasil (Fig. 2). This citation is taken from Lopez *et al.* (2003) that recorded *H. cf. paulinus* from arroyo Tirica, Misiones. The specimens mentioned by those authors were collected by one of the present paper authors (SK) together with the specimens examined in this study. The holotype of *H. paulinus* has the same number of lateral plates, nonetheless it differs from *Hisonotus hungy* in having 4 branched anal-fin rays vs. 5 (we do not know if it is an anomalous specimen); the snout is long and depressed, 38.2% vs. 30.0-32.3% of predorsal length (compare dorsal and lateral views of both species in the figures).

ACKNOWLEDGEMENTS

The authors thank H. Britski (Museu de Zoologia, São Paulo, Brasil) and G. García (Facultad de Ciencias, Montevideo, Uruguay) for gift of material, S. Fisch-Müller (Muséum d'histoire naturelle de Genève, Switzerland) and K. Busse (Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany) for loan of material under their care, J. Maclaine (Natural History Museum, London, United Kingdom) for photographs of and valuable information on *H. paulinus*, an anonymous reviewer for critical revision of the paper and comments, M. Rinas (Ministerio de Ecología de Misiones) for collecting permission, the board and members of Gfl (Ichthyological Society, German language area) for partial support in the collection in arroyo Tirica, J. O. Fernández Santos and R. Filiberto for help in the field, and I. Seidel for providing the photo of the specimen in aquarium.

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