

A new species of *Epactionotus* (Siluriformes: Loricariidae: Otothyriini) from the río Iguazú basin, Argentina

ADRIANA EDITH ALMIRÓN, MARÍA DE LAS MERCEDES AZPELICUETA & JORGE RAFAEL CASCIOTTA

División Zoología Vertebrados, Facultad de Ciencias Naturales y Museo, Paseo del Bosque s/n, 1900 La Plata, Argentina. E-mail: aalmiron @ museo.fcnym.unlp.edu.ar

Abstract. *Epactionotus yasi* sp. n., is described from arroyo Lobo, río Iguazú basin in Argentina. *Epactionotus yasi* sp. n., is distinguished by the following combination of characters: cleithral width (67.8–76.1 % of HL); absence of predorsal unpaired plates; vent completely covered by small platelets; two narrow light stripes from snout tip to the eyes, posteriorly reaching level of supraoccipital tip; one wide, light, lateral stripe from posterior margin of head to caudal peduncle and caudal fin with two light rounded dots placed on dorsal and ventral principal unbranched and four to six next branched rays.

Resumen. Una nueva especie de *Epactionotus* (Siluriformes: Loricariidae: Otothyriini) de la cuenca del río Iguazú en Argentina. En este trabajo se describe *Epactionotus yasi* sp. n., conocida sólo del arroyo Lobo, afluente del río Iguazú en Argentina. *Epactionotus yasi* sp. n. se distingue de todos sus congéneres por la siguiente combinación de caracteres: ancho cleitral (67.8–76.1 % de longitud cabeza); ausencia de placas predorsales impares; vientre completamente cubierto de placas pequeñas; dos bandas claras, angostas que se extienden desde la punta del hocico hasta los ojos y posteriormente hasta el nivel del extremo del supraoccipital. Una banda lateral ancha y clara se extiende desde el margen posterior de la cabeza hasta el pedúnculo caudal. La aleta caudal tiene dos manchas claras redondeadas ubicadas sobre los radios principales ventral y dorsal y los cuatro a seis radios ramificados siguientes.

Kurzfassung. *Epactionotus yasi* sp. n. – eine neue Welsart (Siluriformes: Loricariidae: Otothyriini) aus dem arroyo Lobo (río-Iguazú-Becken) in Argentinien wird beschrieben. *Epactionotus yasi* sp. n. unterscheidet sich von allen anderen, bislang bekannten Arten der Gattung durch folgende Merkmalskombination: Breite des Cleithrums (67,8–76,1 % der Kopfänge); fehlende unpaare Knochenplatten vor der Dorsale; Bauch vollständig mit kleinen Knochenplatten bedeckt; zwei schmale helle Längsstreifen von der Schnauzenspitze zu den Augen, posterior bis zu den Spitzen des Supraoccipitale reichend; ein breiter, hellen Längsstreifen vom Hinterrand des Kopfes zum Schwanzstiel und der Caudale mit zwei hellen, dorsal und ventral angeordneten Punkten, die generell auf dem ungeteilten und den vier nachfolgenden geteilten prinzipiellen Flossenstrahlen der Caudale angeordnet sind.

Key words. Siluriformes, Loricariidae, Otothyriini, *Epactionotus*, new species, Argentina, río Iguazú basin.

Introduction

Within the loricariids, the subfamily Hypoptopomatinae includes two tribes, Hypoptopomatini and Otothyriini (SCHAEFER, 1991, 1998). Most of the tropical and subtropical cis-Andean basins contain species of both groups.

The basin of the río Iguazú was considered very poor in number of species (e.g. HASEMAN, 1911; GODOY, 1979; GARAVELLO *et al.*, 1997). Several authors have studied fishes of that basin (ELLIS, 1911; GOSLINE, 1947; GARAVELLO, 1977; MENEZES & GÉRY, 1983). New collecting efforts in the basin have resulted in the discovery of several new species (de PINNA, 1992; ALMIRÓN *et al.*, 2002; AZPELICUETA *et al.*, 2003).

The río Iguazú is a tributary of the río Paraná and it runs from Serra do Mar in Brasil to its mouth, about 23 km from the cataratas del Iguazú. These falls produce a drop 78 m high which is an effective fish-fauna barrier since its origin in the Oligocene-Miocene (SEVERI & CORDEIRO, 1994).

A member of the tribe Otothyriini was found in a very small stream of río Iguazú basin above the falls. The aim of this paper is to describe a new species of the genus *Epaicionotus* occurring in that small stream, in Argentina.

Material and methods

Specimens were cleared and counterstained following TAYLOR & VAN DYKE (1985). Measurements were taken as straight line distances using digital callipers (REIS & SCHAEFER, 1992). Counts include 4 cleared and stained specimens, holotype, and 14 paratypes. Values of holotype are indicated by an asterisk. Vertebrae count includes those five corresponding to the Weberian apparatus and the complex centrum as one element. Institutional abbreviations are as listed in LEVITON *et al.* (1985) with the addition of Asociación Ictiológica, La Plata, Argentina (AI) and Staatliches Museum für Tierkunde, Dresden, German (MTD F).

Epaicionotus yasi sp. n. (Figs. 1–5, Tab. 1)

Material:

Holotype: MACN-ict 8649, 32.0 mm SL, Argentina, province of Misiones, río Iguazú basin, arroyo Lobo (25°42'57"S, 54°05'59"W), Casciotta, Almirón, Azpelicueta *leg.*, February, 2002.

Paratypes: MTD F 27826-27830, 5 ex., 33.8–36.7 mm SL, same type locality, Casciotta *leg.*, November, 1998. MHNG 2643.86, 5 ex., 32.5–35.5 mm SL, same type locality, Casciotta, Almirón, Donato *leg.*, February 2001. AI 159, 4 ex., 33.6–37.0 mm SL, collected with the holotype.

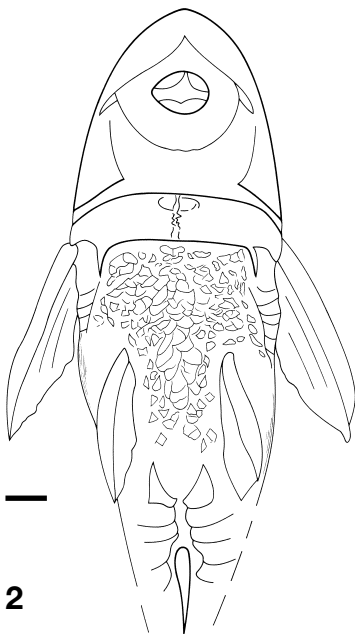
Comparative material examined: *Hisonotus maculipinnis* (Regan, 1912): AI 122, 1 ex., 27.5 mm SL (C&S), Argentina, Corrientes province, río Paraná, Ita Ibaté. AI 123, 5 ex., 23.4–27.0 mm SL, Argentina, Corrientes province, río Paraná basin, Esteros del Iberá, Rincón del Diablo, Laguna Yacaré. *Hisonotus* sp., AI 120, 1 ex., 23.3 mm SL, Argentina, Misiones, río Uruguay basin, arroyo Oveja Negra. *Hypoptopoma inexpectatum* (Holmberg, 1893): AI 119, 1 ex., 35.0 mm SL, Argentina, Corrientes province, río Paraná, Puerto Abra. *Otocinclus flexilis* Cope, 1894: AI 117, 2 ex., 36.0–36.5 mm SL, Argentina, Entre Ríos province, arroyo Nancay. *Otocinclus vestitus* Cope, 1872: AI 118, 3 ex., 26.0–30.4 mm SL, Argentina, Corrientes province, río Paraná, Puerto Abra. *Otocinclus vittatus* Regan, 1904: AI 121, 1 ex., 27.0 mm SL (C&S), Argentina, Corrientes province, río Paraná, Ita Ibaté. AI 127, 1 ex., 26.2 mm SL, Argentina, Buenos Aires province, Río de la Plata basin, arroyo El Pescado.

Diagnosis: *Epaicionotus yasi* sp. n., is diagnosed by the following combination of characters: cleithral width (67.8–76.1 % of HL); predorsal unpaired plates absent; vent completely covered by small platelets; two narrow light stripes from snout tip to the level of supraoccipital tip; one wide, light lateral stripe from posterior margin of head to caudal peduncle; caudal fin dark brown excluded two light rounded dots at middle fin. Both light dots placed on dorsal and ventral principal unbranched and four to six next branched rays.

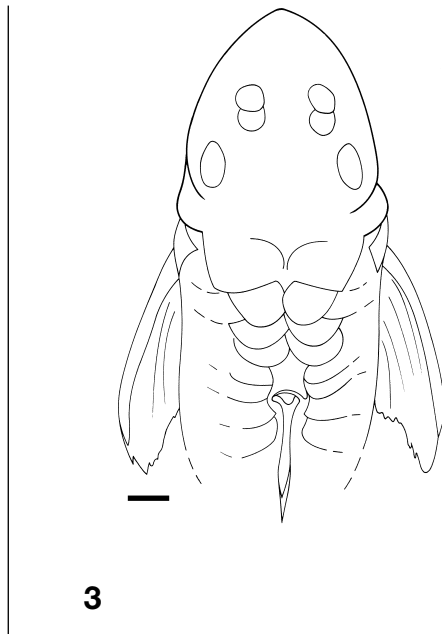
Description: Morphometrics of holotype and 14 paratypes are presented in Tab. 1. Body elongated, head not depressed. Greatest body depth at dorsal fin origin. Head as wide as trunk. Dorsal profile of head from snout tip to orbit level, straight; strongly convex over supraoccipital. Snout tip rounded in dorsal view, without enlarged odontodes. Rostral median plate with notch. Small plates placed anteriorly to anterior margin of nares. Eyes placed dorsolaterally, horizontal eye diameter shorter than suborbital depth and as large as nare diameter. Iris diverticulum present, about half of pupil diameter. Three infraorbitals surrounding orbit, fourth infraorbital expanded ventrally. Margins and surface of lips covered



Fig. 1. *Epactionotus yasi* sp. n., holotype, 32.0 mm SL, Argentina, Misiones province, río Iguazú basin, arroyo Lobo. (A) lateral view, (B) dorsal view.



2



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Fig. 2. *Epactionotus yasi* sp. n., ventral view of abdominal platelets. Scale bar: 2 mm.

Fig. 3. *Epactionotus yasi* sp. n., diagrammatic scheme of predorsal plates. Scale bar: 2 mm.

with papillae. Maxillary barbels short. Jaw teeth bifid, tooth slender with major cusp expanded distally and a very minor one pointed or truncated. Absence of accessory teeth on premaxilla and dentary. One series of teeth, 15–20 (mode 17) on premaxilla and 13–20 (mode 16) on dentary. Pterotic-supracleithrum bearing large openings. The preopercular sensory canals directed toward pterotic-supracleithrum.

Body covered by dermal plates except for naked area around anus, base of pelvic and pectoral fins, lateral opening of swimbladder capsule, and area between pectoral girdle and lower lip. Lateral and anterior rostral plates slightly reflected ventrally. Five lateral series of plates on trunk. Plates of dorsal series continuous; mid-dorsal series incomplete and continuous. Median series 24 (7*), 25 (6), 26 (1), 27 (1). 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 (1), 5 (10*), 6 (4) perforated plates; posterior portion with 10 (4*), 11 (6), 12 (5) perforated plates. First two lateral line plates small, the second one placed on rib of sixth vertebra. Abdomen almost completely covered by plates, variable in size and shape (Fig. 2). Anal fin preceded by 3 or 4 paired lateral plates, between them a wide median plate separating two posterior lateral plates. Coracoid and cleithrum exposed ventrally, excluded arrector fossae area. Absence of unpaired predorsal plates (Fig. 3). 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, pectoral and pelvic spines, and tuft at posterior supraoccipital tip in breeding specimens. Odontodes along anterior margin of snout biserially arranged, dorsad and ventrad series not separated by a naked area.

Dorsal fin with one spine and 7 branched rays, its origin slightly posterior to vertical through pelvic fin origin. Dorsal fin moved posteriorly behind seventh vertebra. First dorsal fin proximal radial articulated with eighth vertebra (Fig. 3). Adipose fin absent. Pectoral fin with one spine and 6 branched rays, reaching nearly half of pelvic fin length. Pectoral fin axillary slit present. Pelvic fin with one spine and 5 branched rays, reaching anal fin origin only in males. Caudal fin with fourteen branched rays.

Total vertebral number 27–28. Neural spine of seventh vertebra not contacting nuchal plate. Neural arch of seventh vertebra narrow, without expansion. Upper pharyngeal tooth plates two times larger than fourth pharyngobranchial.

Color in alcohol: Ground color of dorsolateral body surface brownish, ventral surface of head and trunk pale brown. Narrow light stripe from snout tip to eye, continuing posteriorly reaching level of supraoccipital tip in most specimens; in other ones, extending up level of opercular area. One broad light dorsal stripe extending from posterior margin of head to different levels on caudal peduncle. Ventrolateral margin of snout and head light brown. Posterior tip of supraoccipital with a triangular light area, usually bearing enlarged odontodes. Pectoral, pelvic, dorsal, and anal fins pale brown with dots forming series of darker bands. Base of caudal fin rays with a dorso-ventral light area. Caudal fin dark brown excluded two light rounded dots at middle fin. Both light dots placed on dorsal and ventral principal unbranched and four to six next branched rays. Tips of lower and upper caudal lobes light. One specimen with vertical stripes behind two light rounded dots, and other specimen with small light spots between middle dorso-ventral dots and tip of caudal lobes.

Sexual dimorphism: Pelvic fin spines of males longer than those of females (17.2–18.9 vs. 14.1–15.9 % SL; 7 females and 7 males). Distal tip of pelvic fins reaching anal fin origin in males. Genital papilla of males larger than that of females.

Etymology: the specific epithet *yasi* is a Guaraní word that means moon.

Distribution and habitat: This species is only known from the arroyo Lobo, a tributary of the río Iguazú (Fig. 4). The arroyo Lobo is a small stream about 1.5 m wide and 0.70 m deep, with current and turbid water; its temperature was 24 °C in February. The specimens were captured below terrestrial marginal vegetation (Fig. 5).

Table 1. Morphometric data of the holotype and 14 paratypes of *Epactionotus yasi*. SD: standard deviation.

	Holotype	Range	Mean	SD
Standard length (mm)	32.0	32.0–37.0		
Percents of SL				
Predorsal distance	46.9	42.0–47.4	45.2	1.40
Head length	36.9	32.7–36.9	34.5	1.13
Cleithral width	25.0	22.5–26.6	24.4	1.11
Dorsal-fin spine length	24.7	20.8–26.2	23.1	1.51
Trunk length	20.0	16.0–20.0	17.2	1.00
Pectoral-fin spine length	24.4	22.3–28.0	25.0	1.45
Pelvic-fin spine length	15.9	14.1–18.9	15.8	1.40
Abdominal length	22.5	21.0–23.3	21.8	0.65
Caudal peduncle length	32.2	30.7–36.1	33.1	1.43
Caudal peduncle depth	12.2	10.7–14.8	11.9	0.94
Head depth	19.1	14.7–19.1	17.2	1.17
Snout length	11.3	10.5–13.2	11.8	0.83
Horizontal eye diameter	5.9	4.5–5.9	5.1	0.39
Interorbital width	15.0	12.7–16.2	14.4	0.95
Percents of HL				
Head depth	51.7	44.1–54.7	50.0	2.53
Snout length	30.5	30.5–38.6	34.1	2.35
Horizontal eye diameter	16.1	13.2–16.2	14.8	0.91
Interorbital width	40.7	37.2–46.2	41.7	2.59
Cleithral width	67.8	67.8–76.1	70.9	2.34

Discussion: The tribe Otothyridae includes the genera *Eurycheilichthys*, *Hisonotus*, *Microlepidogaster*, *Otothyris*, *Parotocinclus*, *Pseudotocinclus*, *Pseudotothyris*, *Schizolecis*, *Epactionotus* and one more genus still undescribed (SCHAEFER, 1998; REIS & SCHAEFER, 1998).

The following synapomorphies diagnosed the genus *Epactionotus*, 1 – neural spine of the seventh vertebra not contacting the nuchal plate dorsally, 2 – first dorsal fin proximal radial in contact with eighth vertebra, 3 – absence of expanded fleshy flap on first pelvic fin ray of males; all these features are present in *E. yasi*. Two additional features are useful to distinguish the genus *Epactionotus*, 1 – head and trunk with longitudinal light stripes, and 2 – presence of accessory teeth on premaxilla and dentary. *Epactionotus yasi* has well developed light

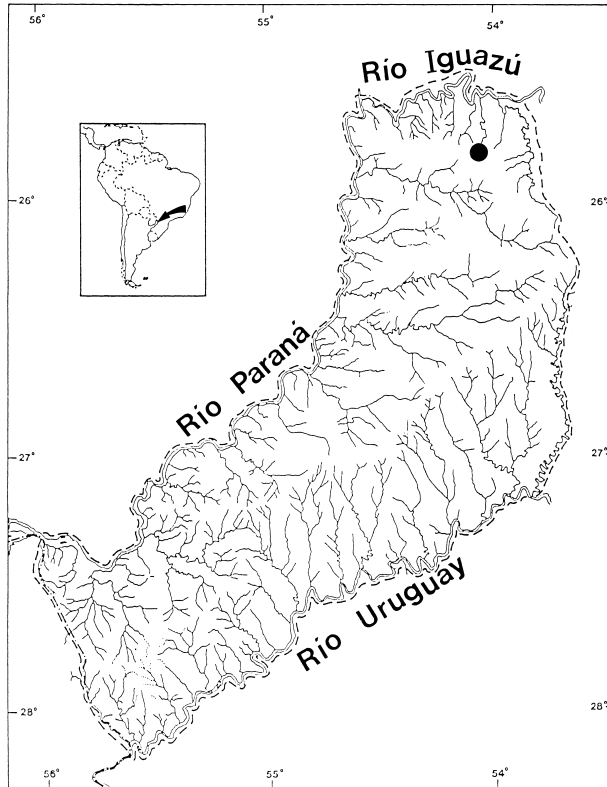


Fig. 4. Map of Argentina, type locality of *Epaicionotus yasi* sp. n. (arroyo Lobo, río Iguazú basin, Misiones, Argentina) indicated by ●.



Fig. 5. Arroyo Lobo, río Iguazú basin, type locality of *Epaicionotus yasi* sp. n.

stripes on head and trunk but it lacks accessory teeth. *Epaicionotus yasi* in contrast to the other species of the genus, lacks unpaired predorsal plates and it has a vent completely covered by platelets.

The genus *Epactionotus* includes at present the species *E. bilineatus* Reis & Schaefer, 1998; *E. itaimbezinho* Reis & Schaefer, 1998; and *E. gracilis* Reis & Schaefer, 1998. *Epactionotus yasi* described herein, differs from *E. itaimbezinho* and *E. gracilis* by a great width at cleithrum (61.1–67.2, 60.3–65.1 respectively vs. 67.8–76.1 % HL). *Epactionotus yasi* differs from *E. bilineatus* in having only one (vs. two), very wide, lateral light stripe; a pair of narrow stripes on snout and head (vs. wide), and the presence of notable dots on caudal fin (vs. few dots on upper rays).

The only Hypoptomatinae recorded for the río Iguazú basin was the otothyridine *Microlepidogaster* sp. (SEVERI & CORDEIRO, 1984; GOMEZ & SOMAY, 1985). In spite of the numerous collecting efforts done in many streams of the río Iguazú basin, the new species *Epactionotus yasi*, was only found in one stream, the arroyo Lobo. It is remarkable that the type locality is a very different environment compared to the other streams known of the basin in the region. The arroyo Lobo carries much sediment, forms meanders, and it is bounded by terrestrial vegetation falling down into the water. This vegetation was the habitat of the new species.

Acknowledgements

The authors thank S. Schaefer (American Museum of Natural History) by reading early drafts of this paper and for valuable comments about the genus; C. Tremouilles (Museo de La Plata) for help with the drawings; M. Rinas for collecting permission (Ministerio de Ecología, Province of Misiones, Res. 166/98); and the Comisión de Investigaciones Científicas de la Provincia de Buenos Aires (CIC) for permanent support to JRC.

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Received 12.11.03, accepted 01.12.2003.