

A new species of *Bryconamericus* (Characiformes, Characidae) from Paraná basin in Misiones, Argentina

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A new species of *Bryconamericus* (Characiformes, Characidae) from Paraná basin in Misiones, Argentina. - The new species *Bryconamericus agna* sp. n. is described from one locality in the stream Tabay (55° 10' W - 27° 00' S), Paraná basin, Misiones. The 6-7 dentary teeth decreasing in size anteroposteriorly differentiate the species from other *Bryconamericus* species. Also, the new species has 19-22 branched anal-fin rays, prominent black humeral spot, wide lateral band, violet upper half of flanks and iridescent green the lower half upon capture.

Key-words: Characiformes - Characidae - *Bryconamericus* - Paraná basin - Argentina - Misiones.

INTRODUCTION

The genus *Bryconamericus* is distributed from Central America (Eigenmann, 1927; Géry, 1977) to the south of Buenos Aires province in Argentina (Menni *et al.*, 1988; Casciotta *et al.*, 1999). The new species possesses all generic characters defined by Eigenmann (1927). Monophyly of this genus has recently been discussed by several authors (see Malabaraba & Kindel, 1995). No phylogenetic studies have yet been carried out within the genus *Bryconamericus*. The objective of the present paper is the description of a new species from the Paraná river basin, in the province of Misiones, Argentina.

MATERIAL AND METHODS

Standard length was measured from tip of snout to hypural joint; head length includes the opercular flap. Specimens were cleared and stained (C&S) for cartilage and bone following Taylor & Van Dyke (1985).

The specimens examined belong to Academy of Natural Science of Philadelphia, USA (ANSP), Fundación Miguel Lillo, Tucumán, Argentina (FML), Muséum d'histoire naturelle, Genève, Switzerland (MHNG), Facultad de Ciencias Naturales y Museo, La Plata, Argentina (MLP).

Comparative material examined. *Bryconamericus agna* sp. n.: MLP uncat., 5 ex. (1 C&S), 52.2-62.2 collected with the holotype. *Bryconamericus iheringi*

(Boulenger, 1887): MLP 9073, 110 ex., 39.9-44.3 (5 measured), **Argentina**, Buenos Aires, Sierra de la Ventana. MLP 9103, 15 ex., 34.8-49.2 (4 measured); Buenos Aires, Berisso, Los Talas (man-made ponds connected to Río de la Plata). Personal collection of MA, AA, and J. Casciotta: Buenos Aires, Berisso, Los Talas, 3 ex., 69.5-75.6; Buenos Aires, arroyo Las Mostazas, 33 ex., 30.0-71.8 (5 measured); Entre Ríos, Colón, río Uruguay, 10 ex., 35.5-46.3 (5 measured); Misiones, arroyo Piray-Miní, 5 ex., 46.0-60.8; Formosa, Reserva Ecológica El Bagual, arroyo Mbiguá, 3 ex., 42.0-45.5; Buenos Aires, Mar Chiquita coastal lagoon, 3 ex., 46.0-52.0; Chaco, flooding area of río Tragadero, near Resistencia, 3 ex., 29.4-34.0. **Uruguay**, Paysandú, arroyo de Los Chanchos, 4 ex., 34.7-40.0; Rocha, río Yaguarón, 5 ex., 37.5-52.0. **Brasil**, Rio Grande do Sul, São Lourenço do Sul, arroio Pinto, 2 ex., C&S, 32.7-38.0. *Bryconamericus exodon* Eigenmann, 1907: **Paraguay**, arroyo Ñacunday, 40 ex., 37.4-53.0 (5 measured). *Bryconamericus* cf. *stramineus* Eigenmann, 1908: **Argentina**, Entre Ríos, Isla Queguay Grande, río Uruguay, 3 ex., 40.0-43.0; Entre Ríos, Colón, río Uruguay, 6 ex., 37.4-52.0. *Bryconamericus thomasi* Fowler, 1940: **Argentina**, Jujuy, arroyo Saladillo, 7 ex., 49.5-52.8 (5 measured).

RESULTS

Bryconamericus agna sp. n.

Figs 1 - 6, table 1

Holotype. FML 3700, female, 61.0 mm SL, Argentina, Misiones, Municipio Libertador General San Martín, arroyo Tabay (55° 10' W - 27° 00' S), Paraná basin. Coll. D. Aichino *et al.*, November 1998.

Paratypes. All specimens collected with the holotype. ANSP 177871, 4 ex., 54.0-57.3. FML 3200, 2 ex., 53.5-55.8. MHNG 2611.46, 4 ex., 54.3-60.0.

Diagnosis. *Bryconamericus agna* is distinguished from other species of the genus by a combination of characters: 6-7 dentary teeth decreasing in size antero-posteriorly; 4 inner teeth in the premaxilla, 3 of them heptacuspoid; 2-3 pentacuspoid maxillary teeth; 19-22 branched anal-fin rays; 36-38 perforated scales in the lateral line; large black humeral spot, and wide black lateral band. Upper half of flanks violet, lower half iridescent green.

Description. Morphometrics of holotype, 10 paratypes, and 5 non-paratypes specimens are presented in table 1. *Bryconamericus* with deep body (Fig. 1), maximum body depth at dorsal-fin origin. Dorsal profile of body very convex from tip of snout to dorsal-fin origin, almost straight under dorsal fin, slanting ventrally from this point to caudal peduncle. Dorsal profile of caudal peduncle scarcely concave or straight. Ventral profile of body less arched than upper one from tip of snout to origin of anal fin, straight over that fin, and slanted dorsally to caudal peduncle. Ventral profile of caudal peduncle convex. Body rounded between pectoral and pelvic fins. Body laterally compressed between pelvic and anal fins.

Dorsal-fin origin equally distant from tip of snout and base of caudal-fin rays. Dorsal-fin origin behind the vertical through last pelvic-fin ray insertion. Adipose fin present. Tip of pectoral fin never reaching pelvic-fin origin. Tip of pelvic fin reaching or surpassing anal-fin origin in males; in females, pelvic-fin tip not reaching that origin, usually far.

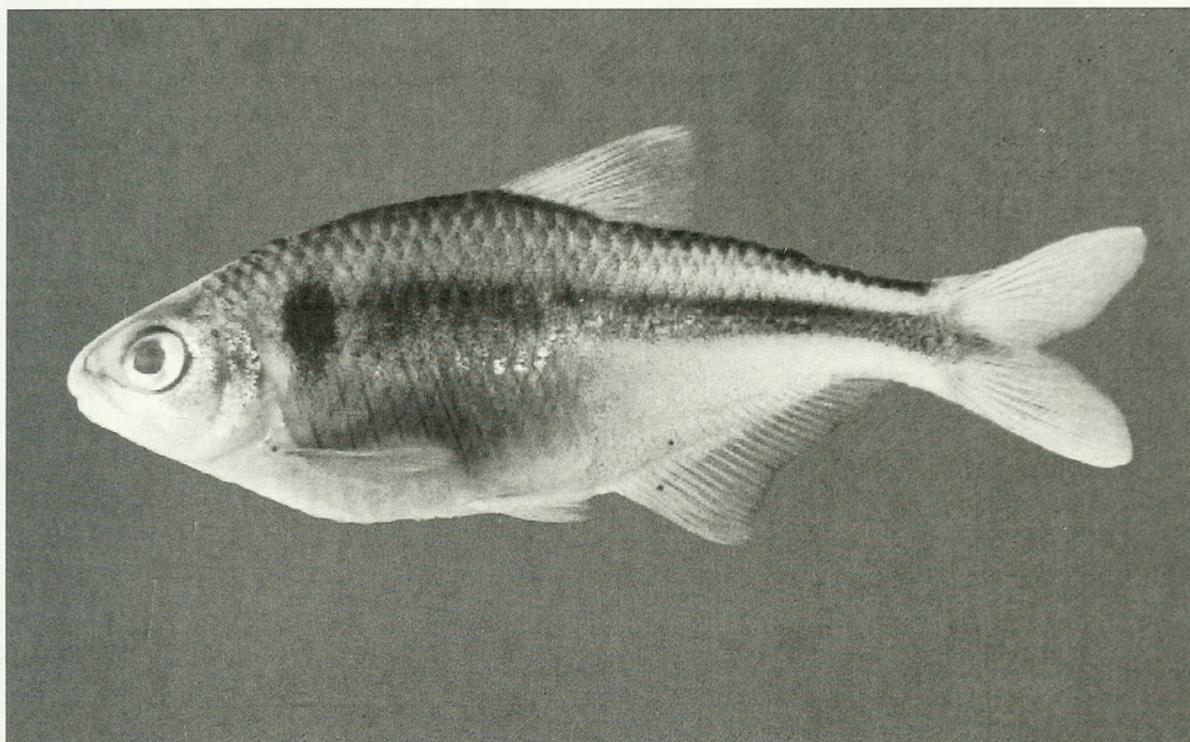


FIG. 1

Bryconamericus agna sp. n., holotype, FML 3700, 61.0 mm SL.

Dorsal fin ii,8 rays; posterior margin of dorsal fin rounded, first branched dorsal-fin ray longest. Anal-fin iii,19-22 rays (9 including holotype: 20), (4: 21), (2: 22), (1: 19). Posterior margin straight in males; in females, first three or four branched rays produced, forming a lobe. Anal fin of all males bearing very small hooks directed posteriorly and outward, curved dorsally. Hooks present on first to fourteenth branched anal-fin rays; hooks on posterior branch only (Fig. 2).

Caudal fin bearing one unbranched and nine branched principal rays in upper lobe; eight branched and one unbranched principal rays in lower lobe. Caudal lobes similar in size, in some specimens lower one scarcely wider than upper one.

Pectoral-fin i,10-12 rays (7: 11), (5 including holotype: 10), (4: 12); posterior fin margin straight.

Pelvic fin i,7-8 rays (14 including holotype: 7); posterior margin slightly rounded. Hooks developed on all branched rays in some specimens. Hooks larger than those of anal fin, placed lateroventrally, curved inward and dorsally, occasionally on two ray branches.

Dorsal profile of head gently convex, concave over supraoccipital. Snout rounded, mouth inferior, under level of lower orbital margin. Lower jaw completely included. Maxilla short, reaching or slightly surpassing anterior orbital margin.

Dentary bearing 6-7 teeth, decreasing in size anteroposteriorly. Symphyseal tooth broad, with 6-7 cusps. Second and third teeth with 6 cusps, fourth and fifth teeth with 5 cusps, sixth and seventh teeth with 3 cusps (Fig. 3).

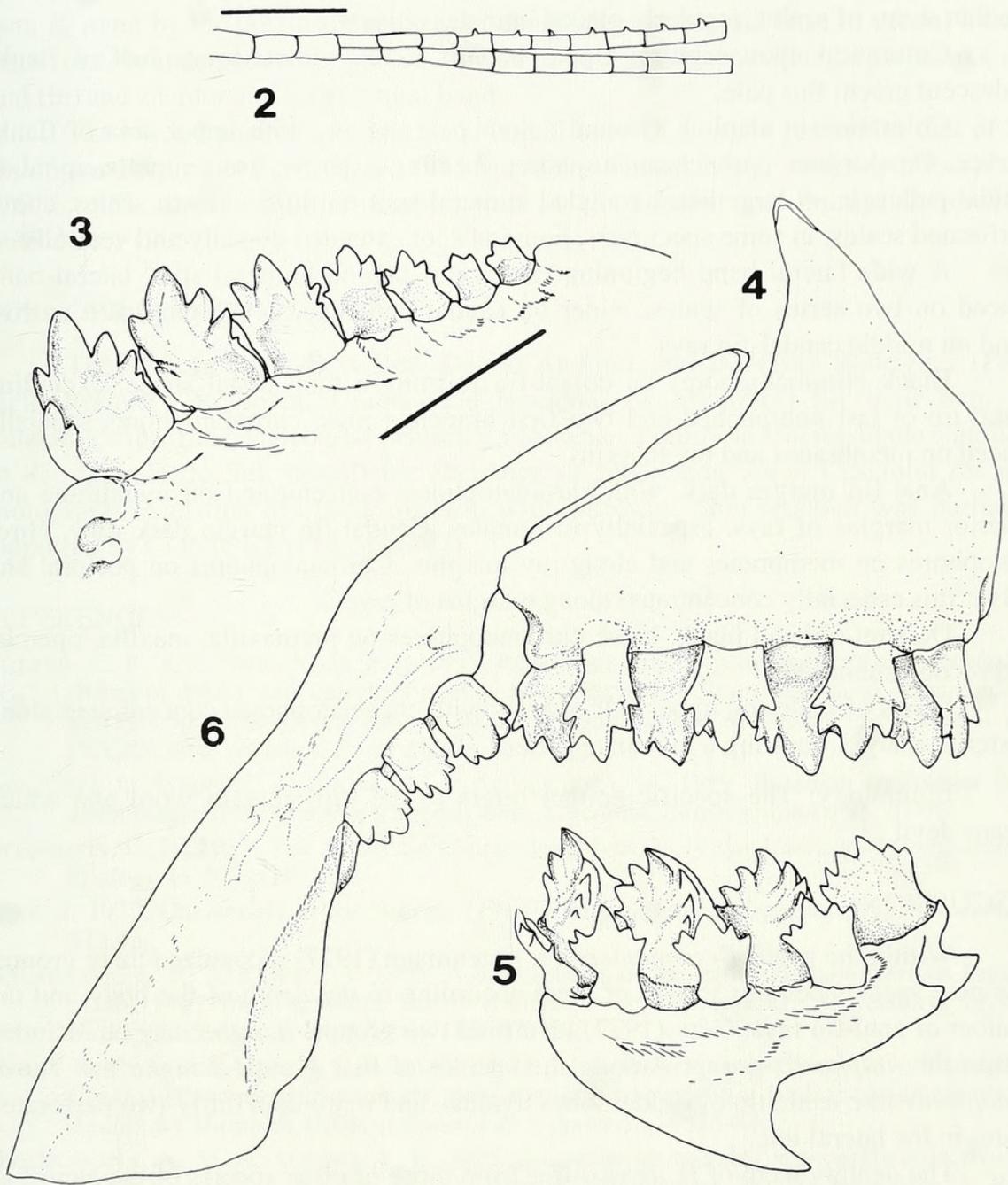
TABLE 1. Morphometrics of the holotype and 15 specimens of *Bryconamericus agna*. Standard length is expressed in mm. SD: standard deviation

	Holotype	range	mean	SD
Standard length	61.0	54.5-65.0		
% of SL				
body depth	39.8	34.1-39.8	36.3	1.419
head length	24.6	23.8-27.3	25.2	0.633
predorsal length	47.7	47.3-50.3	48.6	0.916
preventral length	45.0	43.0-47.8	45.1	1.414
preanal length	60.9	57.8-62.3	60.3	1.261
dorsal-fin base	12.5	11.8-13.9	12.9	0.550
anal-fin base	29.2	25.0-29.6	28.1	1.298
pelvic-fin length	14.7	14.3-17.1	15.7	0.919
pectoral-fin length	21.8	20.0-23.7	21.9	0.848
caudal peduncle depth	11.4	10.9-11.8	11.3	0.231
caudal peduncle length	13.6	12.9-14.6	13.7	0.568
distance between pectoral and pelvic fin origins	23.9	23.9-26.2	25.1	0.633
distance between pelvic and anal fin origins	16.3	14.4-19.2	15.8	1.205
% of head length				
interorbital width	33.3	29.7-36.2	33.4	1.648
head depth	84.0	78.7-88.0	84.0	3.019
orbital diameter	32.0	28.7-34.2	31.6	1.642
snout	22.0	19.3-25.1	22.8	1.565
premaxilla+maxilla length	39.3	34.1-41.0	37.5	1.619
maxillary length	20.0	17.4-22.5	20.1	1.304
% of pectoral-pelvic fin origins				
pectoral length	91.0	80.0-94.7	87.6	3.926

Premaxilla with ascending process short; alveolar ramus stout, bearing two series of teeth. Usually, outer series with 4 aligned teeth, all pentacuspoid but symphyseal one tetracuspoid. Teeth scarcely wider distally (Fig. 4), with stronger median cusps. Inner series of premaxillary teeth consisting of 4 teeth (3 specimens: large 3 teeth on one premaxilla). Symphyseal tooth narrower, with 7 cusps (Fig. 5). Second and third teeth with 7 cusps, outer cusps very small. Second tooth strongest. Fourth tooth with 6 cusps. Maxilla with lateral process laminar, ascending process very long, teeth placed equidistant from anterior and posterior tips. Two or three pentacuspoid teeth, with a median cusp larger (Fig. 6). One specimen with maxilla edentulous on one side.

Eye small, interorbital wide. Third infraorbital contacting sensory tube of preopercle.

Scales cycloid. Lateral series with 36-38 perforated scales (9: 37), (4: 36), (3 including holotype: 38). Five or six scales between dorsal-fin origin and lateral line; 4 scales between lateral line and anal-fin origin. Fourteen scales around caudal peduncle (1 specimen: 12). Ten to fourteen scales not forming a regular median series between supraoccipital process and dorsal-fin origin in most specimens. Ten to



FIGS 2-6

Fig. 2. *Bryconamericus agna* sp. n., 55.5 mm SL, a detail of the small anal-fin hooks. Figs 3-6. *Bryconamericus agna* sp. n., 58.0 mm SL. 3, posterior view of dentary, with a detail of the dentary teeth; 4, anterior view of premaxilla with the outer series of teeth; 5, ventrolateral view of premaxilla showing cusps of the inner series of teeth; 6, anterior view of maxilla with three pentacuspoid teeth. Scale bars = 0.5 mm.

thirteen scales in one row, covering eleven or twelve first anal-fin rays. Ventrally, one median series of scales, regularly placed in males only.

Coloration upon capture: Upper half of flanks violet; lower half of flanks iridescent green; fins pale.

Coloration in alcohol: Ground colour pale yellow, with upper area of flanks darker. On dorsum, dark chromatophores forming a stripe from supraoccipital to caudal peduncle. A large black rounded humeral spot on third to sixth scales, above perforated scales; in some specimens, humeral spot extended dorsally and ventrally.

A wide lateral band beginning two scales behind humeral spot, lateral band placed on two series of scales, wider on caudal peduncle, developing as a narrow band on middle caudal-fin rays.

Black chromatophores on dorsal-fin forming a faint distal stripe, excluding distal tip of last unbranched and two first branched rays; chromatophores specially placed on membranes and ray margins.

Anal-fin margin dark, with chromatophores concentrated on membrane and anterior margins of rays, especially in females. Caudal-fin margin dark gray, chromatophores on membranes and along ray margins. Chromatophores on pectoral and pelvic fins especially concentrated along margins of rays.

Dorsum of head black; black chromatophores on premaxilla, maxilla, opercle, and second suborbital.

Series of scales on upper half of body with chromatophores concentrated along posterior margin, forming a reticulate pattern.

Etymology: The specific epithet refers to the tupí-guaraní word *añá* which means devil.

DISCUSSION

Within the genus *Bryconamericus*, Eigenmann (1927) recognized three groups. The new species belongs to two of them according to the depth of the body and the number of anal-fin rays. Géry (1977) identified two groups, *B. agna* may be included within the *diaphanus*-group. Among the species of that group, *B. agna* has *Tetraodon*-like teeth, tip of caudal lobes hyaline, and more than thirty-two perforated scales in the lateral line.

The dentary teeth of *B. agna* differ from those of other species of the genus; as in *B. exodon* Eigenmann, 1907, most of the species have three or four large dentary teeth followed by several very small ones. Each dentary of *B. agna* bears 6-7 teeth decreasing in size anteroposteriorly.

The 19-22 branched anal-fin rays separate *B. agna* from other species of the genus, living in southern South America: *B. eigenmanni* (Evermann et Kendall, 1906) (15-17, Miquelarena & Aquino, 1999), *B. iheringi* (Boulenger, 1887) (15-18), *B. lambari* Malabarba et Kindel (14-19, Malabarba & Kindel, 1995), *B. thomasi* Fowler, 1940 (11-16, pers. obs.; Miquelarena & Aquino, 1995).

The presence of silvery band and the lower body depth (22.9-26.9 vs. 34.1-39.8) distinguish *B. stramineus* Eigenmann, 1908 from *B. agna*.

In the area, the most common species is *B. iheringi* which is also separated from *B. agna* by the dorsal fin equidistant from tip of snout and base of caudal lobes, larger eye, longer peduncle, greater length of premaxilla+maxilla, larger hooks on anal fin, and slender and short lateral band.

The black humeral spot and wide lateral band of *B. agna* resembles that of *B. ornaticeps* Bizerril et Peres-Neto, 1995 but it has slender body, with depth less than 30.0 % of SL, and a very short anal fin with 14-15 branched anal-fin rays (Bizerril & Peres-Neto, 1995).

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