REVISION OF *BRYCONAMERICUS* (CHARACIFORMES, CHARACIDAE) FROM PACIFIC COASTAL AND AMAZON RIVER DRAINAGES WITH DESCRIPTIONS OF THREE NEW SPECIES

REVISIÓN DE *BRYCONAMERICUS* (CHARACIFORMES, CHARACIDAE) DE LOS DRENAJES COSTEROS DEL PACÍFICO Y DEL RÍO AMAZONAS CON DESCRIPCIONES DE TRES NUEVAS ESPECIES.

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ABSTRACT

We report the results of a taxonomic revision of the species of *Bryconamericus* from the Amazon River Basin of Peru, Ecuador, Bolivia and the Pacific coastal rivers of Peru. Based on morphological analyses, four valid species are recognized: *B. bolivianus* Pearson 1924, B. osgoodi Eigenmann & Allen 1942, *B. pachacuti* Eigenmann 1927 and *B. phoenicopterus* (Cope 1872). Three new species are described: *B. lambayequensis* sp. n. from the Cañariaco River, Pacific coast, Peru and two from the Amazon River Basin: *B. abalio* sp. n. from the Ucayali River drainage, Peru, and *B. parapetiensis* sp. n. from Itenez/Parapeti, Amazonia, Bolivia. Two species are synonymized and one was recently assigned to another genus: *Bryconamericus alfredae* is considered a junior synonym of *Acrobrycon ipanquianus*; *Bryconamericus grosvenori* is a junior synonym of *B. bolivianus*. A taxonomic key to these species of *Bryconamericus* and comments on the conservation status of the Amazonian and Pacific coast freshwater ichthyofauna are also included.

Keywords: Diversity; neotropical fish; morphology; melanophores; taxonomy.

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RESUMEN

Reportamos los resultados de una revisión taxonómica de las especies de *Bryconamericus* de la cuenca del río Amazonas de Perú, Ecuador, Bolivia y los ríos costeros del Pacífico de Perú. Con base en análisis morfológicos, se reconocen cuatro especies válidas: *B. bolivianus Pearson* 1924, B. osgoodi Eigenmann & Allen 1942, *B. pachacuti Eigenmann* 1927 y *B. phoenicopterus* (Cope 1872). Se describen tres nuevas especies: *B. lambayequensis* sp. n. del río Cañariaco, costa del Pacífico, Perú y dos de la cuenca del río Amazonas: *B. abalio* sp. n. del drenaje del río Ucayali, Perú, y *B. parapetiensis* sp. n. de Itenez/Parapeti, Amazonia, Bolivia. Se han sinonimizado dos especies y una se asignó recientemente a otro género: *Bryconamericus alfredae* se considera un sinónimo menor de *Acrobrycon ipanquianus; Bryconamericus grosvenori* es un sinónimo menor de *B. bolivianus.* También se incluye una clave taxonómica de estas especies de *Bryconamericus* y comentarios sobre el estado de conservación de la ictiofauna de agua dulce de la Amazonía y la costa del Pacífico.

Palabras clave: Diversidad; peces neotropicales; morfología; melanóforos; taxonomía

INTRODUCTION

The taxonomic validity of *Bryconamericus* and *Knodus* has been under discussion since Schultz (1944) proposed that *Knodus* was a synonym of *Bryconamericus*. Today however, it is generally accepted that these genera are distinct. Ferreira & Lima (2006), Zarske (2008), Ferreira & Carvajal (2007), Ferreira & Netto-Ferreira (2010), Román-Valencia *et al.* (2013a), Esguicero & Castro (2014), Mirande (2018), Menezes & Marinho (2019) and Anjos de Sousa et al. (2020) treated *Knodus* as valid as diagnosed by Eigenmann (1927), defined by a combination of characters, such as complete lateral line, four teeth on inner premaxillary series, and differing from *Bryconamericus* in the type of caudal squamation; in accordance with Menezes & Netto-Ferreira (2019), very likely that many of species identified as *Knodus* or *Bryconamericus* correspond to *Rhinopetitia* species. Mirande (2018) recognized the clades *Knodus* and *Diapoma* (including some species of *Bryconamericus*) within Diapomini.

In *Bryconamericus*, there are one or two larger, rounded scales located at the base of each caudal lobe, except in *B. caldasi*, that has two or more rows of scales covering the bases of the caudal-fin rays (Román-Valencia *et al.* 2014). Furthermore, in *Bryconamericus* scalation does not extend beyond one-third of the length of the caudal-fin rays, and when well preserved, scales do not cover the procurrent caudal-fin rays; similar to the scale pattern observed in species of *Astyanax* (see Ruiz-C. *et al.* 2018). In *Knodus,* the caudal scales are smaller and cover at least two-thirds of the length of the caudal-fin rays as well as the procurrent caudal-fin rays. In addition, males of *Knodus* lack the thickening of the interradial tissue of the anterior portion of the anal-fin that is usually observed in males of *Bryconamericus* (Román-Valencia *et al.* 2013a; Esguicero & Castro 2014); however, Garcia-Melo *et al*. (2019) discuss, without support in their results, the validity of this character: ”….The caudal scalation characteristic of *Knodus*…is not taxonomically or phylogenetically useful…”. Esguicero & Castro (2014) noted that *Knodus* differs from *Bryconamericus* by the anterior termination of the frontals; in *Hemibrycon* elongated scales cover the middle part of the caudal-fin lobes but not the procurrent rays (Román-Valencia *et al.,* 2013b: Fig. 3).

Thomaz *et al.* (2015) and in sequence Garcia-Melo *et al*. (2019) rejected the hypothesis of monophyly of the genera *Bryconamericus*, *Knodus*, *Hemibrycon* and *Cyanocharax* based on molecular characters, and reassigned several species; therefore, this groups still lacks a phylogenetic definition; neverthless was detected potential taxonomic misidentifications in 17% of the taxa that were here evaluated (10 of 59 species) (Román-Valencia, 2021).

With respect to their proposed revalidation of the genus *Eretmobrycon*, it is worth noting that in light of their findings, the limits of the genera *Bryconamericus*, *Knodus*, *Eretmobrycon*, *Hemibrycon*, etc. and the number of species assigned to each is called in to question, and must now be reinterpreted, based on additional molecular characters in combination with morphology, cytogenetic markers biogeographical and even ecological characters, some species were transferred to different genera without explanation (Bortoncello Prestes *et al.* 2019; Mirande 2018; Román-Valencia *et al.* 2017; 2018; Román-Valencia, 2021); Teran et al. (2020) gave a diagnosis for *Eretmobrycon*, and established the phylogenetic relationships of ten species using 25 molecular and seven morphological synapomorphies. Many of species and specimens examined in our studies (e.g. Román-Valencia 2000; Román-Valencia & Muñoz 2001a;b; Román-Valencia 2003; Román-Valencia et al.2008; 2009; Román-Valencia & Arcila-Mesa 2010; Román-Valencia *et al.* 2013a;b; Román-Valencia *et al*. 2014; Román-Valencia *et al*. 2017; Román-Valencia *et al.* 2018), were not included in their molecular phylogeny (Thomaz et al. 2015 ; Garcia-Melo et al. 2019; Román-Valencia, 2021) and there are no reasons for this, since numerous type and non-type material of these species are available in laboratory of Ichthyology, University of Quindio, Armenia, Colombia IUQ (Román-Valencia et al. 2017; Román-Valencia et al. 2018; Román-Valencia, 2021).

Efforts to clarify this situation are underway; resolution will require sampling more taxa, incorporation of additional informative characters; also, correct species identifications of material or vouchers where the tissues are extracted for molecular analyzes (Román-Valencia, 2021). So, for now we are still using the diagnosis of *Bryconamericus* proposed by Eigenmann (1927), Román-Valencia *et al*. (2013a; 2014) and Esguicero & Castro (2014). In *Bryconamericus* 52 species are currently recognized (Román-Valencia & Vanegas-Rios 2009; Román-Valencia et al. 2009; 2010b; 2013a; 2014; 2015; Dagosta & Netto-Ferreira 2015; Jimenez-Prado *et al.* 2015; Fricker et al. 2023), not including the new species described herein. Nine species of *Bryconamericus* have been reported from Bolivia and seven from Peru (Fricker et al. 2023). Previously 38 species have been reported in the genus *Knodus* (Weitzman et al. 2005; Ferreira & Netto-Ferreira 2010; Román-Valencia et al. 2013a; Esguicero & Castro 2014; Menezes & Marinho 2019; Fricker et al. 2023). However, most of the Amazon River Basin is still not well surveyed and *Bryconamericus* species in Peru and Bolivia are poorly sampled and studied. Thus, further study is warranted for taxonomic reasons, but also to call attention to the state of conservation of the many *Bryconamericus* species, which have relatively small ranges and occur in drainages that are being seriously degraded by gold mining and other impacts, thus further justifying the need to investigate the fauna of unexplored environment. The objective of this paper is to identify and better define the distribution of the *Bryconamericus* species present in the upper Amazon and Paraná-Paraguay river basins, and from the coast of Peru and adjacent regions.

MATERIAL AND METHODS

Specimens examined are deposited in the following institutions: **Bolivia:** Colección Boliviana de

Fauna, Universidad Mayor de San Andrés, La Paz (CBF) and Colección de Peces, Laboratorio de Limnología, Depto. de Biología, Universidad Mayor de San Simón, Cochabamba (UMSS); **Ecuador**: Colección de Peces de la Escuela Politécnica Nacional, Instituto de Ciencias Biológicas, Quito, (MEPN) and Colección de Peces de la Pontificia Universidad Católica de Ecuador, campus Esmeraldas (ZOOA); **England:** British Museum Natural History (BMNH); **Perú**: Museo de Historia Natural, Departamento de Ictiología, de la Universidad Nacional Mayor de San Marcos, Lima (MUSM);**Colombia**: Universidad del Quindío, Laboratorio de Ictiología (IUQ), **United States of America (USA)**: The Fish Collection of the Natural History Museum at Auburn University (AUM), Philadelphia Academy of Natural Sciences (ANSP) and California Academy of Sciences, San Francisco (CAS). Institutional abbreviations (=acronyms) follow Sabaj-Pérez (2016).

The twenty-one morphometric and nine meristic characters measured in this study follow (Román-Valencia 2003a, Fig. 1); except the number of anterior transverse scales was counted from the tip of the supraoccipital process to the dorsal margin of the opercle, that is included as a diagnostic character of *B. lambayenquensis* n. sp. Measurements were taken in millimeters and were taken point to point on the left side of specimens when possible, with digital calipers, or a digital photograph analyzer. Counts were done using a stereoscope or lighted magnifying glass. Measurements of type material were processed using the software program Image J ver. 1.48. All measurements are expressed as percentages of standard (%SL) or head length (%HL). Data ranges and means were calculated and presented by allopatric or sympatric populations as warranted. On these measurements, a transformation was made to remove the effect of size on distances (allometry vs. standard length) and on these a comparative multivariate analysis using Principal Component Analysis (PCA) and Discriminant Analysis was performed using Past vers. 3.0 software, in order to reconfirm the data according to the distribution model and its identification.

Counts for the holotype are indicated with an asterisk (*). In the lists of the types and examined material, the information is given as follows: COUNTRY: Material (the number of individuals, sex), followed by range of standard length in mm (SL), geographic /locality data, coordinates, altitude, collect date and collection acronym and catalog number for that lot: BOLIVIA: 7♀, 37.5-63.0 mm SL, Santa Cruz Department, Ichilo province, Parque Nacional and Amboró Integral Management Area, San Juan del Potrero, Amazon, Ichilo-Mamoré River drainage (17º57’49.15” S, 64º16’52.70”W) 1536 m.a.s.l., M. Maldonado, CBF 06023.

Pigmentation patterns of the humeral spot region in material preserved in alcohol are illustrated in Figure 1, following Román-Valencia *et al.* (2015) and Ruiz-C. *et al.* (2018). Conformation of the anterior spot above the humeral region, presents two configurations or layers of pigments (indicated by numbers 1 and 2 in Fig.1), the layer of pigment nearest the surface (indicated by number 1) contains diffuse melanophores, arranged vertically over the humeral region; the second, deeper layer of pigment (indicated by number 2), is concentrated along the laterosensory canal in the humeral region, and may or may not have light spaces between the dark patches, which determines the layer’s intensity (Fig.1).

Osteological observations were made on cleared and stained, adult specimens (C&S) prepared according to Taylor & Van Dyke (1985) and Song & Parenti (1995). Bone nomenclature follows Weitzman (1962) and Vari (1995). Diagnosis of the species reviewed here and some material examined

species were made with extensive analysis of characters in *Bryconamericus* species based on a matrix containing 86% of the species recognized in an ongoing phylogenetic analysis.

COMPARATIVE MATERIAL EXAMINED

Acrobrycon ipanquianus **(=**types of *Bryconamericus alfredae***)** Paratypes: PERU: 9, 4♂ and 5♀, 28.4-41.5 mm SL, Cusco Department, Amazonas River Basin, Urubamba River, Santa Ana, 1036 m.a.s.l., CAS 39500; BOLIVIA: 37, 20♂ and 17♀, 30.5-56.4 mm SL, La Paz Department, Amazon River Basin, Colorado River, tributary to lower Bopi River 10 miles above Huachi (=San Miguel de Huachi), 30 Sep. 1921, CAS 39501. Holotype, unknown sex, 36.12 mm SL, PERU: Cusco Department, Amazon River Basin, Urubamba, River, MCZ 31564 or Holotype, unknown sex, 36.55 mm SL, PERU: Cusco Department, Amazon River Basin, Urubamba, River, MCZ 30982; syntypes of *Tetragonopterus ipanquianus*: 2, 91.9-96.5 mm SL, unknown sex, Peru, Ucayali Department, Río Urubamba, one of the sources of the Río Ucayali, ANSP 21114 and ANSP 21115. ***Attonitus bounites*****:** All from BOLIVIA: 3 unknown sex, 24.86-28.89 mm SL, Beni Department, Amazon/Madeira, Beni/Bopi, Yanamayu River, 23 Oct. 2009, J. Zubieta, E. de La Barrra and Campos Zubieta, UMSS 09825; 8♀, 21.8-29.8 mm SL, Beni Department, Amazon/Madeira, Mamore/Grande, Mina Asientos River, 6 Sept. 1998, UMSS 05691; 6♀, 37.5-41.3 mm SL, Beni Department, Amazon/Madeira, Beni /Bopi, Carrasco River, Carrasco, 15 Oct. 2009, J. Zubleta, E. de La Barrra and Campos Zubieta, UMSS 10102; 3♀, 32.6-35.8 mm SL, Beni Department, Amazon/Madeira, Beni/Bopi, Yanamayu River, 23 Oct. 2009, J. Zubieta, E. de La Barrra and Campos Zubieta, UMSS 09827; 11♀, 27.0-53.1 mm SL, Beni Department, Amazon/Madeira, Beni/Cotacajes, tributary Cotacajes River, San Miguel de Huachi, 5 Nov. 2009,Zubieta J. De La Barra E., Turquino Bubieta, UMSS 10002; 49, 20♀ and 29 unknown sex, 27.1-33.9 mm SL, Beni Dept., Amazon/Madeira, Beni/Cotacajes, tributary of Cotacajes, San Miguel de Huachi, 20 Oct. 2008, J. Zubieta, E. de La Barrra and Campos Zubieta , UMSS 08832; 49 unknown sex, 23.3-30.8 mm SL, Beni Dept., Amazon/Madeira, upper Beni, Tohomonco military base, 9 Dec. 2008, M. Maldonado, UMSS 08921. ***Attonitus ephimeros*****:** PERU:1 unknown sex,36.41 mmSLCusco, La Convención, Rio Urubamba, Rio Picha, Puerto Huallana, 29 May 1997, F. Chang, MUSM 12163; 5♀, 29.0-40.0 mm SL, Junín Department, Chanchamayo, Chanel River between Colorado River, 7 Dec. 1987, H. Ortega et al., MUSM 12268; 3♀, 36.6-49.0 mm SL, Cusco Department, La Convención, Echarate, Urubamba River, Mapitoniari River, in Montecarmelo, 11 Nov. 2007, H. Ortega et al., MUSM 32229; BOLIVIA: 4♀, 25.6-29.6 mm SL, Beni Department, Amazon/Madeira, Beni/Kaka, Tajlihui in Alcoche, 16 Oct. 2009, Zubieta J, De La Barrra E, Campos, UMSS 10078; 3 ♀,32.6-39.20 mm SL, Cusco department, La Convención, Urubamba, 23 May 1995, F. Chang, MUSM 12072. ***Attonitus irisae*****:** PERU: 3 unknown sex, 36.24-49.36 mm SL, Cusco, La Convención, Echarate, Urubamba, Rio Mapitoniari, Monte Carmelo, 11 Nov 2007, B. Rengifo, MUSM 32229; 53, 13♀ and 40 unknown sex, 19.9-30.5 mm SL, Beni Dept., San Miguel of Huachi locality, Amazon/Madeira, Beni/Cotacajes, tributary of Cotacajes River, 20 Oct. 2008, Zubieta J. Quinteros D, Aguilar F, UMSS 08831; 9♀, 19.4-37.9 mm SL, Junín Department, Satipo River, La Florida Creek (11º17'6" S, 74º40'45"W), 23 Sep. 1995, H. Ortega et al., MUSM 12227; BOLIVIA: 10, 25.9-40.5 mm SL, Cusco, La Convención, Echarate, Urubamba River, 12 Nov. 2007, R. Quispe et al., MUSM 32348.***Attonitus*** sp.: BOLIVIA: 10♀, 37.4-43.6 mm SL, Santa Cruz Department, Ichilo Province, Parque Nacional and integrated management area Amboro, 15 May 1996; J. Sarmiento & S. Barrera, CBF 07239; 10♀, 25.9-42.9 mm SL Santa Cruz Department, Ichilo Province, Parque Nacional and integrated management area Amboro10 km downstream from Mairana, 19 May 1996,

J. Sarmiento, CBF 08042; 35, unknown sex, 18.6-25.6 mm SL, Beni Department, Amazon/Beni Madeira/Alto Beni, Mapuri Chiqui, 6 Nov. 2009, Zubieta J, De La Barra E., Calaman, UMSS 09707; 6, 23.6-43.6 mm SL, Amazon Beni, Madeira, Alto Beni, Tohomonoco Creek, Tohomonoco military base, 4 Nov. 2009, Zubieta J, De La Barra E, Campos, UMSS 09881; PERU: 8♀, 21.7-33.7 mm SL, Pasco, Oxampampa. Pozuzo, Huancabamba River, 21 Oct. 2005, E. Castro, MUSM 26592; C&S, 12 unknown sex, 22.2-33.7 mm SL, Ayacucho, Huamanga, Yucay River, 20 Aug. 2004, M. Maldonado, MUSM 50975. ***Bryconacidnus pectinatus***: (see Vari & Siebert 1990; Weitzman et al. 2005; Mirande 2018; Fricker et al. 2023). All from PERU: 5♀, 22.7-24.94 mm SL, Madre de Dios Department, Calli Creek, 5 Sep. 1988, H. Ortega et al., MUSM 3821; 1♀, 28.6 mm SL, Madre de Dios Department, Manu National Park, Manu River, beach near Cucha (12°17'05.52" S, 7°52'07.01"W), 8 Sep. 1988, H. Ortega, MUSM 3809; 1♀, Madre de Dios Department, Manu National Park Pakitza, Picaflor Creek, 13 Set. 1998, H. Ortega, MUSM 3825; 1♀ (C& S) 36.56 mm SL, Madre de Dios Department, Manu National Park Pakitza, Picaflor Creek, 13 Set. 1998, H. Ortega, MUSM 3825. ***Bryconamericus cismontanus*** (see Román-Valencia 2005): 9, unknown sex, 40.12-43.71 mm SL, Valencia, Carabobo, Rio Las Peñitas en Vigirima al NE de Valencia, 10 20.01' & 67 52' ,29 Dec 1990, D.C. Taphorn et al., MCNG 24650. ***Knodus diaphanus*:** (see Román-Valencia et al. 2013a). Eretmobrycon ecuadorensis: ECUADOR: C&S, 2, 35.30-41.12 mm SL, Morona-Santiago Province, Yapapa River tributary of Santiago River, 9 May 1991, IUQ 3135. ***Bryconamericus orinocoense*** (see Román-Valencia 2003b); all from VENEZUELA: 6 unknown sex, paratypes, 23.2-30.2 mm SL., Amazonas state, Orinoco River, en la playa más o menos 1/2 Km arriba de la Esmeralda (02° 53'06" N, 64°58'06"W), 12 Mar. 1987, IUQ 433. 2, 1♀ and 1 unknown sex, C&S, paratypes, 30.7-33.8mm SL., Amazonas state, Orinoco River, en la playa más o menos 1/2 Km arriba de la Esmeralda (02°53'06" N, 64°58'06"W), 12 Mar. 1987, IUQ 1208. ***Bryconamericus simus***: (see Román-Valencia et al. 2013a). Bryconamericus stramineus: BRAZIL: 15, 1♂ and 14♀, 26.3-36.1 mm SL, Formozinho River, 17 km from Bonito River (21°15'14.6" S, 56°33'35.7"W), 6 Sep. 1998, H. Ortega et al., MUSM 17039. Bryconamericus simus: syntypes of Tetragonopterus simus Boulenger, 1898; BMNH 1898.11.4.71-73, 3 unknown sex. Bryconamericus turiuba (see Román-Valencia et al. 2008b). ***Bryconamericus*** sp 1: PARAGUAY: 5 ♂ 33.18-39.22 mm SL and 5♀36.95-43.07 mm SL, Alto Paraguay, varias localidades del Rio Paraguay, Rio Negro, Arroyo riacho La Paz, sept 1997, J. Sarmiento, CBF 06415; 1♂ 28.70 mm SL and 4♀26.42-28.35 mm SL, Alto Paraguay, varias localidades del Rio Paraguay, Rio Negro, Arroyo riacho La Paz, sept 1997, J. Sarmiento, CBF 06341; 6♀, 21.9-33.5 mm SL, upper Paraguay, some localities from Paraguay, Negro and Apa Rivers, La Paz Creek, Set. 1997, J. Sarmiento & S. Barrera, CBF 06386. 2♀, 24.1-27.8 mm SL, Madre de Dios Department, Tambopata Mazuko, Inambari River, Buenqueme Creek, 8 Sep. 2009, H. Ortega, MUSM 25433; 2♀,23.8-24.9 mm SL, Alto Paraguay, varias localidades del Rio Paraguay, Negro, Apia,y Riacho La Paz, Sep 1997, J. Sarmiento, CBF06247; 1♀, 20.3 mm SL, Madre de Dios Department, Tambopata, Tambopata River, Botafogo Beach (12°17'05.52"S, 71°52'07.01"W), 276 m.a.s.l, 13 Jun. 2006, B. Rengifo, MUSM 29125. ***Bryconamericus*** sp 2. BOLIVIA: 5 unknown sex, 19.83-24.49 mm SL, CBBA, Carrasco, campamento Yuki, Apr 1996, J. Sarmiento, CBF 05902 ;3 unknown sex, 27.3-33.4 mm SL, La Paz Department, San Pedro Province, Beni-Madeira, San Pedro River Coroico, Kaka (10°16'31.9" S, 67°37'00.95"W) 773 m.a.s.l, 12 Nov. 1996, J. Sarmiento & S. Barrera, CBF 06934; 1 unknown sex, 40.42 mm SL, La Paz, F. Tamayo, Rio Eslabón, J. Sarmiento, CBF 07873. ***Bryconamericus*** sp 3. BOLIVIA: 2 ♂33.93-41.43 mm SL, La Paz, F. Tamayo, Rio Eslabon, 21 Aug 1998, J. Sarmiento, CBF 07897; 2 Unknown sex, 30.19-37.29 mm SL, La Paz, F. Tamayo, Rio Eslabon, 21 Aug 1998, J. Sarmiento, CBF 07016;1 unknown sex,51.26 mm SL, Amazonas/ Mamore,

Madera /Ichilo, Rio Grande, 22 May 1998, Maldonado M & Goita E. UMSS 05694; 14, 5♀ and 9 unknown sex, 23.1-60.52 mm SL, La Paz, Amazonas, Madera-Mamoré-Grandes, Rio Mina Asientos, 6 Set 1998, M. Maldonado, UMSS 05693. ***Bryconamericus*** sp 4. PERU:1 unknown sex, 15.61 mm SL, Loreto, Loreto, Oarinaria, Rio Marañon, aguas arriba de Saramuro, 16 Oct, F. Castro, MUSM 17540; 1♀, 35.3 mm SL, Ucayali, padre abad, Irazola, Rio Aguaytia, Rio Chio, 8 Oct1984, H. Ortega et al., MUSM 17228; 1♀,79.6 mm SL, Amazonas, Condorcanqui, Cenepa, quebrada Capitan Ponce, 3 Nov 2003, H. Ortega et al., MUSM 21283; PERU: 9♀,25.2-40.8 mm SL, Amazonas, Condorcanqui, Cenepa, Rio Alto Cenepa, quebrada Capitan Ponce, 9 Nov 2003,H. Ortega et al., MUSM 21297a; PERU: 2♀ C&S,25.4-36.9 mm SL, Amazonas, Condorcanqui, Cenepa, Rio Alto Cenepa, quebrada Capitan Ponce, 9 Nov 2003, H: Ortega et al., MUSM 21297b . ***Bryconamericus*** sp.n. PERU: 1 unknown sex, 36.67 mm SL, Madre de Dios, RN Tambopata km 2-7 a Cococha, 26 Jan 1990, H. Ortega, MUSM 2140; 4♀, 37.5-48.0 mm SL, Cusco Department, La Convención, Echarate, Ucayali River drainage, Iherimpituari Creek, subdrainage Paratori River, 16 Mar. 2008, H. Ortega, MUSM 32466; 1 unknown sex (C & S), 41.60 mm SL, Cusco Department, La Convención, Echarate, Ucayali River drainage, Iherimpituari Creek, subdrainage Paratori River, 16 Mar. 2008, H. Ortega, MUSM 32466. ***Bryconamericus*** sp. PERU: 10♀, 15.0-54.7 mm SL, Pasco Department, Oxapampa, Villa Rica, San Pedro de Pichanos village, Ucayali River drainage, Pichanos Creek, 3 Jun. 2004, B. Rengifo et al., MUSM 30363. ***Bryconamericus*** sp. BOLIVIA: 2♂50.87-51.30 mm SL, Potosi, Linares, Rio Mata, 11 Oct 1996, J. Sarmiento, CBF 05923; 8♀,33.8-52.6 mm SL, Santa Cruz Department, Ichilo, PN Ami Amboro-Tambo, 24 May 1996, S. Barrera & J. Sarmiento, CBF 06015; 2 unknown sex (C & S), 34.54-42.96 mm SL, Santa Cruz Department, Ichilo, PN Ami Amboro-Tambo, 24 May 1996, S. Barrera & J. Sarmiento, CBF 06015; 10: 3♂ and 7 ♀,29.7-39.2 mm SL, Pando department, Manuripi province, Nareuda River, small river abajo del puente, en la ruta de Cobija, 7 Sept. 1996, J. Sarmiento & S. Barrera, CBF 04980; 5♀, 37.4-45.9 mm SL, Pando department, Manuripi province, Nareuda River, small river abajo del puente, en la ruta de Cobija, 4 Sept. 1996, J. Sarmiento & S. Barrera, CBF 4834. ***Eretmobrycon brevirostris***: See also Román-Valencia et al. (2011). All from ECUADOR: Western Andes, 1 ♂, lectotype, 44.8 mm SL, BMNH 1860.6.16.166 or 196; 20, 2♂ and 18♀, 39.6-61.9 mm SL, Loja Province, International bridge in Macará, 30 Mar. 1979, IUQ 3215; 50 unknown sex, 37.7-49.1mm SL, Guayas Province, Guayas River Basin, Cotimes, Daule River, A. Henn, MUSM 6889. PERU: 3♀, 48.2-50.6 mm SL, Tumbes Department, San Jacinto, La Peña, River, Bocatoma canal, 6 Jul. 1992, H. Ortega et al., MUSM 3393; 33♀, 15.8-40.62 mm SL, Tumbes, Zarumilla, La Pampa, Rio Zarumilla, 15 Aug. 1994, P. de Rhan, MUSM 5765 ;3♀, 45.7-75.4 mm SL, Tumbes Department, Tumbes River 500 m from bridge (3º 29'33.60 "S, 80º 27'26.39"W) 0 m.a.s.l., 5 Jul. 1992,F.Cahng,MUSM3306;5sexunknown,40.8-56.97mmSL,Tumbes,Zarumilla,Matapalo,quebrada Faical,17 Aug1994, P de Rhat e al.,MUSM5740; 1 sex unknown, Azuay province, canton "Ponce Enriquez", Río Fermín, long. 640.400,55-lat. 9.664.305,80, 103 m.a.s.l. 11 Jan.2010, P. Jimenez, ZOOA 003; 3 sex unknown, Los Ríos Province, canton Mocache, Rio Garzas, long. 658532-lat. 9866070, 61 m.a.s.l., 17 Aug.2013, P. Jiménez, ZOOA 045; 4 sex unknown, Los Ríos Province, canton Balzar, Rio Maculillo, long. 640688-Lat. 9856716, 30 m.a.s.l., 19 Aug. 2013, P. Jiménez, ZOOA 046; 3 sex unknown, Guayas Province, canton Santa Lucia, Rio Daul, Long. 612001, Lat. 9810036, 18 m.a.s.l., 28 Set 2013, P. Jiménez, ZOOA O51; 4 sex unknown, Los Ríos Province, canton Juan, Río Los Tintos, Long. 662653-Lat. 9793145, 17 m.a.s.l., 26 Sept. 2013, P. Jiménez, ZOOA 053; 4 sex unknown, Guayas Province, canton Salitre, Río Salitre, Long. 635607, Lat. 9792316, 15 m.a.s.l., 25 Sept 2013, P. Jiménez, ZOOA 054; 5 sex unknown, Los Ríos Province, canton Buena Fé, Rio Baba, Long. 682466, Lat. 9936641, 146 m.a.s.l., 21 Sept, 2013, P. Jiménez, ZOOA 055; 3 sex

unknown, Los Ríos Province, canton Abras Mante, Río Naranjo, Long. 647551, Lat. 9835154, 25 m.a.s.l., 21 Feb 2014, P. Jiménez, ZOOA 059; 5 sex unknown, Loja province, 4 May 2014, P. Jiménez, ZOOA 060; 1 sex unknown, El Oro Province, canton Pasaje, Jubones River, Long. 641766.23, Lat. 2 9632941.95, 486 m.a.s.l., 6 Jul. 2014, P. Jiménez, ZOOA 061; 2 sex unknown, Long. 641766.23, Lat. 9632941.95, 486 m.a.s.l., El Oro Province, canton Pasaje, Río Jubones, P. Jiménez, ZOOA 065. Astyanax notemigonoides, Fowler H.W. 1911 (= E. brevirostris). All from ECUADOR: Holotype, sex unknown, South America, Guayas Province affluent of Chimbo River near Bucay, ANSP 39110. All from PERU: 7♀, 32.8-40.0 mm SL, Tumbes Department, San Jacinto Bocatoma, Tumbes River, 16 Aug. 1994, P. de Rhan et al., MUSM 5732; 9♀, 26.1-38.8 mm SL, Tumbes Department, Tumbes River in irrigation canal, 6 Feb. 1992, F. Chang, MUSM 3394; 1♂, 45 mm SL, Tumbes Department, Zarumilla, Matapalo, Zarumilla River (3°29'39" S, 80°14'15,35"W) 7 m.a.s.l.,11 Dec 1990, F. Cuadros, MUSM 3058; 33, 3♂ and 30♀,16.4-43.7 mm SL, Tumbes Department, Zarumilla, Lepanga, Zarumilla River, 15 Aug. 1994, P. de Rham, MUSM 5765; 20♀, 44.6-68.7 mm SL, Tumbes Department, Tumbes River, on irrigation canal, 10 Aug. 1986, H. Ortega et al., MUSM 2582; 20 sex unknown,37.9-71.2 mm SL, Tumbes Department, Zarumilla River and shallow pools, 12 Aug. 1986, R. Vari et al., MUSM 1983; 2 sex unknown, C&S, 43.0-50.3 mm SL, Tumbes Department, Zarumilla River and shallow pools, 12 Aug. 1986, H. Ortega et al., MUSM 50981. ***Eretmobrycon dahli*** (see Román-Valencia et al. 2013a; Mirande 2018): All from ECUADOR: 1♂, 48.6 mm SL, Esmeraldas province, Estero Maria, Canton "Eloy Alfaro", San Agustin community on main road from Esmeraldas to San Lorenzo (2°21'02.1" N, 78°55'21.2"W) 21 m.a.s.l., 20 Sep. 2014, C. Román-Valencia et al., IUQ 3804; 5 unknown sex, 23.8-49.0 mm SL, Esmeraldas province, Sabalera River, La Chiquita reserve in San Lorenzo (1°14'33.2"N, 78°45'05.5"W) 36 m.a.s.l., 20 Sep. 2014, C. Román-Valencia et al., IUQ 3805; 33, 29♀ and 4 unknown sex, 15.2-45.3 mm SL, Esmeraldas, Las Antonias wetlands (0°58'50.2" N, 78°51'56.0"W) 28 m.a.s.l., 20 Sep. 2014, C. García-Alzate et al. IUQ 3806; 9,3♂ and 6♀, 55.7-64.1 mm SL, Esmeraldas province, Santiago River, next to Las Antonias wetlands, Cantón "Eloy Alfaro" (0°58'54.2" N, 78°51'54.3"W) 24 m.a.s.l., 20 Sep. 2014, C. García-Alzate et al., IUQ 3808; 75, 4♂ and 71♀, 23.4-62.6 mm SL, Esmeraldas province, Sabalera River, La Chiquita Reserve, Cantón San Lorenzo (01°14'33.2" N, 78°45'05.5"W) 36 m.a.s.l., 27 Sep. 2014, C. García-Alzate et al., IUQ 3811; 51, 2♂ and 49♀, 28.77-57.76 mm SL, Esmeraldas province, Las Marías wetland, Cantón "Eloy Alfaro", San Agustin community on main road from Esmeraldas to San Lorenzo (01°02'92.8"N, 78°55.0'22.2"W) 21 m.a.s.l., 27 Sep. 2014, C. García-Alzate et al., IUQ 3809. ***Eretmobrycon peruanus*** (see Román-Valencia 1998; Mirande 2018): PERU: 9, 12.28-51.91 mm SL, unknown sex, , Lambayeque, Chiclayo, Rio Zaña, 1 May 2009, Vari R. , MUSM 3241; 16, 19.01-71.44 mm SL, unknown sex, Tumbes, Zarumilla, Matapalo, Rio Zarumilla,Q. Falcal,17 Aug. 2003, P de Rham 6 F. Chang, MUSM 6255;5, 30.02-38.14 mm SL, unknown sex, Lambayeque, Chiclayo, Rio Zauxi,313 mals, 29 Apr 2009, Vari R. MUSM 35238; 4 (C & S), unknown sex,43.91-57.05 mm SL, Tumbes, Zarumilla, Matapalo, Rio Zarumilla, quebrada Faicol, 17 Aug. 2004, P de Rhan & F. Chango, MUSM 71315; 2 (C&S),unknown sex,49.95 -57.15 mm SL, Lima, Pantanos de Villa, canal abierto estación hidrométrica, 28 Jan 1995, O. Huaman & E. Castro, MUSM 71315, 14, unknown sex, 25.02-60.48 mm SL, Cajamarca, Contumaza, Rio Jequetepeque,trasval 7° 13' 27.5´´ S & 78 48´31.4´´W, 918 m, 19 Marc 2001, M. Hidalgo & C. Paloma, MUSM 18038; 5, unknow sex, 20.24-27.52 mm SL, Ancash, Huari, Palca, Rio Puchka, 3 Nov 1991, C. Palma, MUSM 15706; 2♂75.36-80.01 mm SL, 11 ♀ 62.05-69.53 mm Sl and 4 unknown sex26.19-39.76 mm SL, Lima, Cañete, Imperil, Rio Cañicte, 10 Feb 1994, H Ortea, MUSM 10270; 3 (C & S) unknown sex, 37.37-64.52 mm SL, Lima, Cañete, Imperil, Rio Cañicte, 10 Feb 1994, H Ortea, MUSM 71315; 14 unknow sex, 24.25 -61.18 mm SL.,

Cajamarca, Contumaza, Rio Jequetepeque Trasval 7º13’ 22.5 ‘’S & 78º 48’ 31.4’’ W, 918 m, M Hidalgo & C. Palma, MUSM 18030; 22 unknown sex 25.19-38.19 mm SL, Piura, Sullana, Rio Chira, 5 May 2000, M Hidalgo, MUSM 16789; 5, unknown sex, 36.95-49.23 mm SL, Cajamarca, Contumazo, Rio Jequetepequel granada 7º 15’ 22.7 ‘’S & 78º 38’ 48.6’’ W,1336 m, M Hidalgo & C. Palma, MUSM 18642; 3♂57.04-63.07 mm SL, and 2♀ 65.48-69.83 mm SL,,Lima, Rio Chillon, puente Trapiche,25 Apr 1950, H WKoepcke, MUSM12539;14♀52.62-88.2 mm SL and 1 ♂70.84 mm SL, Tumbes, Rio Tumbes, 11 Nov 1978, W. Gutiérrez, MUSM 0166; 83, 5♂and 78♀, 22.9-58.5 mm SL, Piura, Sullana, Mallares, Saman bridge, channel of Chira River, 18 Aug. 1994, H. Ortega, MUSM 5752; 9, 9♀, 42.8-688.9 mm.SL, Piura, rio Sitopiura, 15, Aug. 1995, P. Guerrerro, MUSM7332; 6, 4♀ and 2♂,76.1-89.9 mm SL, Tumbes, quebrada Fallcal (Luida Clara), 27 Oct. 1997, J. Delgado, MUSM 0147. ***Eretmobrycon terrabensis***: (see Román-Valencia *et al.* 2008b; Mirande 2018). ***Hemibrycon cristiani*** (see Román-Valencia 1998; Mirande 2018). Knodus carlosi: (see Román-Valencia et al. 2013a) Peru:30 unknown sex, 17.47-44.46 mm SL, Cusco, La convención, Echarate, Rio Camiza, quebrada Yoputuriari, 11 Oct 1998, N Salcedo & R. Acosto, MUSM 13590; 18 unknown sex, 17.78-27.26 mm SL, Amazonas, Bagua, Imazita, Marañon, 11 Nov 1996, F. Chang, MUSM10601;34 2♂37.24-40.82 mm SL and 32 ♀15.43-45.03 mm SL, Cusco, La Convención, Echarate, ca. del bajo Urubamba, Q. Katshingari,478 m. 21 Jan 2005, H. Ortega et al. ,MUSM31463; 2♂32.53-41.37 mm SL, 26.40-47.80mm SL and 7 unknown sex13.38-24.52mm SL, Cusco, la convención, bajo Urubamba, 8 Jun 2004, H. Ortega, MUSM 31390; 73♂ 28.33-39.67 mm SL, and 55 ♀ 25.01-38.28 mm SL, Cusco, La convención, Echarate, Rio camisea, 9 Spt 2005, B. Rengifo, MUSM 26075; 1♂34.13 and 21♀ 20.70-54.92 mm SL, Pasco, Oxampa,Constitución, Rio El Dorado,22 Jul2001, Eart Wa, MUSM 19013; 5♂27.29 mm-43.63 mm SL and 86 ♀ 17.11-37.41 mm SL, Cuisco, La Convención, Echarate, Alto Urubamba, boca quebradaKadshingar, 29Set 2008, I. Carahua et al., MUSM 34323; 9♂32.85-39.54 mm SL and 11 ♀ 29.72 -39.71 mm SL, Cusco, La Convencion, Echarate, bajo Urubamba, 28 Apr 2005, MUSM 30677; 11♀36.98-47.73 mm SL, 6♂37.53-48.21 mm SL and 11 unknown sex 19.31-34.01 mm SL, Amazonas, Condorcanqui, Cenepa, Rio Alto Cenepa, quebrada ♀ 20.56-40.87 mm SL and 1 ♂31.63 mm SL, SanMartin, M. Caceres,Huicungo, PNRA, Abisco,358 m,21 May,H. Ortega et al., MUSM32564; 32♂ 20.57-38.65 mm SL, 28♀19.62-41.87 mm SL and 6 unknown sex13.53-18.18 mm SL,Huanuco, Puerto Inca, codo del posazo cca. De Paliazu, quebrada Charapa, 22 may 2004, B. Rengifo et al. MUSM 29963; 16♂28.74-40.26 mm SL and 15 ♀24.34-40.43 mm SL, Cusco, La Convención, Echaratecca. Bajo Urubamba, 28 Jan 2005, H. Ortega, MUSM 30912; 8♂28.95-42.33 mm SL , 23♀23.92-62.28 mm SL and 9 unknown sex19.8-25.00 mm SL, Loreto,Rio Corrientes, quebrada a 1 Km Rio Corrientes, 30 Jun2008, Rio Quisé, MUSM 37696; 2169♀,18.61-38.34 mm SL and 18 33♀,18♂, 29.44-42.83 mm SL, Madre de Dios, Tambopata, Rio Tambopata, quebrada Garza13 10′21′′S &69 37’41’’W, 2 Oct 1995, F. Chang, MUSM8332; ♂.33-39.33 mm SL and 15 ♂, 28.51-42.65 mm SL, Loreto, Andaces, Rio Corrientes, Rio Macusari, 7 de julio de 2006, M. Velasquez, MUSM 32106;7 ♂ 27.74-37.89 mm SL and 3♀, 27.37-38.39 mm SL, Huanuco, pto. Inca, codo de pozuzo, 22 May 2004, B. Rengifo &F. Velásquez, MUSM 30127; 21♂25.43-37.36 mm SL, and 18 ♀22.86-40.49 mm SL, Pasco, Oxapampa, Iscozacin, Rio Chuichurras, quebrada Helga, 20 Jun2000, H. Ortega et al. MUSM 29441; 15♀,29.5-38.82 and 16 ♂ 28.84-36.16 mm SL, San Martin, Tarapota, Ahuashiyacu parte alta,29 Feb1997, MUSM 15654;8♂34.4-47.62 mm SL and 51♀19.38-47.6 mm SL, Huanuco, Aucayacu,Jose Crespo y Castillo, CP Consuelo, Rio Huallaga, Rio Aucayacu, 26 Jan 2008, M. Velasquez, MUSM 32822; 25♀,22.12-46.66 mm SL and 22♂,33.22-44.01 mm SL, Ucayali, Atalaya, Sepahua, quebrada Las Piedras, 25, 2009, H. Ortega, MUSM 35753; 8 ♂,27.49-37.43 mm SL,, and 13 ♀,18.61-32.68 mm SL, Huanuco, Pto. Inca, codo de pozuso,Pucacurga,

quebrada Pucacurrga, 22 May 2004, B. Rengifo, MUSM 300055; 59♀,2211-47.49 mm SL y 41♂,26.41-45.70 mm SL, Amazonas, Condorcanqui, Cenepa,quebrada Capitan,75 m., 13 Nov 2005, B. Rengifo and M. Velásquez, MUSM 21284; 26 ♂ 26.53-50.37 mm SL ,and 31♂27.35-44.97 mm SL, Ucallaly, padre Abad, Rio Agaytio, quebrada Moronal km. 23.5 via Curimana, 14 May 1997, H. Ortega, M Hidalgo, MUSM 16088; 27mm SL and 55♀, 19.12-48.63 mm SL, Loreto, Rio Corrientes a 35 Km de Jibano,170 m., Jun 29 de 2008, R. Quispe, MUSM 37638; 49♀,15.20-46.65 mm SL and 1♂52.51 mm SL, San Martin, Moyobamba, Rio Negro, 21 Oct 2001, H. Ortega, MUSM 33455;22♀13.49-36.86 mm Sl and 1♂ 31.23 mm SL, Huanuco, Pto. Inca, codo del Pozuelo, Huampumayo 210 m, 22 may 2004, B. Rengifo et al., MUSM 30089. ***Knodus delta***: (see Román-Valencia 2003a; b; Román-Valencia *et al*. 2013a). Peru: 25♀, 34.60-54.62 mm SL and 18 ♂,37.42-62.85 mm ♂ SL, Loreto, cuenca rio Marañon,andoas, 201 m, 27 sept. 2008, MUSM 38111; 3 (C & S), unknow sex, 44,09-56.57 mm SL, Loreto, cuenca rio Marañon,andoas, 201 m, 27 sept. 2008, MUSM 38111. *Knodus diaphanus*: All from PERU: Lectotype, 41.6 mm SL, Huallaga River in Moyabamba, ANSP 21216; 40, 20.0-31.7 mm. SL, San Martin, Moyobamba, Indoche River, 826 m.a.s.l., H. Ortega et al., MUSM 33475; 3 (C & S),unknown sex, 23.59-29.52 mm. SL, San Martin, Moyobamba, Indoche River, 826 m.a.s.l., H. Ortega et al., MUSM 71375. ***Knodus heteresthes*:** (see Román-Valencia *et al.* 2013a). ***Knodus hypopterus*:** (see Román-Valencia *et al.* 2013a). ***Knodus meridae***: (see Román-Valencia et al. 2013a): Venezuela; unknow sex, 31.43-36.92 mm SL, , Trujillo, Caño en Flor nde patria, quebrada catalina, D.C. Taphorn et al.5 Jan 1991, MCNG 24892. Bolivia. ***Knodus mizquae***: 7, 5♂ and 2♀,48.0-57.3 mm SL, Amazon Department, Mamoré River Salado, 11 Jul. 2005, M. Maldonado, UMSS 00700. ***Knodus moenkhausii***: Bolivia: 7 unknow sex, 30.06-37.85 mm SL, Beni, J. Baillivian, puente camino San Bergan, Santa Rosa (Achaparina), J. Sarmiento, CBF 08067; 5 unknown sex, 28.18-29.22 mm SL, Beni, Yacuma, reservade la biósfera, estación biológica Beni, estación 08, 5 Apr 1986, J Sarmiento, CBF 03129;1 unknow sex, 29.93 mm SL, Pando ,Manuripi, Rio Nareuda, arriba del campamento Nareuda en la palya, 4 sept 1996, J. Sarmiento, CBF 4793; 2 unknown sex, 34.41-47.60 mm SL, La Paz, F. Tamayo, Rio Eslabon, 21 Aug 1998, J. Sarmiento, CBF 07898; 1, 30.9 mm SL, La Paz, F. Tamayo County, Eslabón River, 21 Aug. 1998, J. Sarmiento & S. Barrera, CBF 07879; Peru:5 ♂,36.47-46.68 mm SL and 11♀24.67-40.11 mm SL, Cusco, Quispicanchi,Camarati, cueva Araza, 1 Oct 2005, M. Hidalgo, MUSM26419; 2, unknown sex, 14.75-35.59 mm SL,Ucayali, Atalaya, Sepahua, Rio Urubamba, quebrada Comarillo, 4 Nov 1998, H. Ortega, MUSM 13691. ***Knodus orteguasae*:** (see Román-Valencia *et al.* 2013a). ***Knodus pasco*:** (see Román-Valencia *et al.* 2013a) PERU: 4 unknown sex 45.30-48.01 mmSL, Cusco, La Convencion, April 1947, MUSM 13907;15 unknown sex, 12.98-55.13 mm SL, Cusco, La Convención, EcharateRagoreni, quebrada Osnetoato, M Hidalgo& E Castro, MUSM13906;16 5 4 unknown sex, 24.93-28.78 mm SL, Ucayali, Purus Apr 1934; 4 unknow sex,, 50.85-53.34 mm SL, La Convecion, Apr. 2012,H. Ortega, MUSM 13591; 11♂41.44-47.93 mm SL and 15 ♀ 40.90-69.60 mmSL, 7 unknown sex 28.14-37.21 mm SL , Cusco, La Convención, Echarate, San martin, quebradaNatiringari,10 Mar1998, N. salcedo, MUSM13664; 4 unknown sex, 26.40-32.05 mm SL, Cusco, La Covención, Echarate, cuenc Rio Urubamba, quebrada Choro, R. Camisea365 m.5 Oct 2007, MUSM 31700; 2 (C & S), unknown sex, 32.68-33.16 mm SL, Cusco, La Covención, Echarate, Rio Urubamba, quebrada Choro, R. Camisea365 m.5 Oct 2007, MUSM 13664; 1 ♂45.12 mm SL and 3 ♀ 39.81-46.17 mm SL, Cusco Department, La Convención, Apr 1946, MUSM 13914; 48 unknown sex 17.23-66.33 mm SL, Puno, Sandia, Candamo11, Dec 1996, F. Chang et al. , MUSM 10351; 3 unknown sex, 31.79-35.24 mm LS, Cusco, La Convención, Pagoreni, N. Salcedo & M Hidalgo, 21 Sept 1998, MUSM 13576; 27, 14♀ and 13 unknown sex, 15.6-54.6 mm SL Cusco Department, La Convención, Echarate, San Martin, 7 Nov.

1998, H. Ortega et al., MUSM 13655; 29♀,40.87-58.62 mm SL, ♀Puno, SandiaRio Candamo, quebrada Ebcbahuacji, 31 March 1997, F. Cahng, MUSM 11081 ;3 ♀,317-36.9mm SL.,Cusco Department, La convención, Pagoreni, N. Salcedo & M. Hidalgo, 21 Sept. 1998. ***Knodus shinahota***: (see Román-Valencia *et al*. 2013a) Peru:26 unknown sex, 17.62-42.84 mm SL, Cusco, La Convención, Echarate, Urubamba, Rio Paraton, R. Poyiriari, 20 May 2008, R. Quispe, MUSM 36071; 4 ♂37.93-44.29 mm Sl and 16♀25.23-49.57 mm SL, Madre de Dios, Tambopata,Terz,la colpa, Rio Tambopata, 21 Aug 1992, F. Chang & A. Mijkaja, MUSM15576. ***Knodus victoriae*:** (see Román-Valencia *et al*. 2013a) Peru: 3♂26.33-34.36 mm and 125 ♀13.95-34.13 mm SL, Madre de dios, Tambopata, Mazukocca. Inambari, R. Inambari, 311 msnm, 27 Jul 2004, MUSM 25439; 1 unknown sex 30.08 mm SL, Madre de Dios, Tambopata, quebradakm 127,20 Feb 1998, C. Cañas, MUSM 16368. ***Knodus*** sp. 1**.:** PERU:98 unknown sex, 14.02-26,16 mm SL, Junin, Satipo, en Poyeni, Rio Tambo margen izquierda, 254 m., 27 Oct 2005, M. Velasquez, MUSM 26975; 2 unknown sex 20.96-23.48 mm SL, Junin, Satipo, CN Mayape, Rio Mayapo, 23 Oct 2005, M Velasquez, MUSM 27005; 17 unknown sex 46.86-63.20 mm SL, Junin, Chancamayo, Rio Perene cerca al Rio Pancartambo, 1 May 1999, M Salcedo & H. Ortega, MUSM 16720; 4 unknown sex (C & S), 41.55-45.87 mm SL, Junin, Chancamayo, Rio Perene cerca al Rio Pancartambo, 1 May 1999, M Salcedo & H. Ortega, MUSM 71318; 5 unknown sex 27.08-34.96 mm SL, San Martin, M. Caceres, Huicunga, Rio Abiseo, quebrada Machaco, 358 m., 21 May 2008, H. Ortega, MUSM 32567; 10♂43.51-49.55 mm SL and 11♀38.13-50.60 mm SL, Loreto, Ucayali Costamaná, sierra de la Contanama, Rio Ucayali 7º 10 ´58.4 ´´ W, 74º 57´10.4 ´´ W, 16 Nov 2000, H. Ortega, MUSM 17612; 4 (C & S), unknown sex, 40.45-46.07 mm SL, Loreto, Ucayali Costamaná, sierra de la Contanama, Rio Ucayali 7º 10 ´58.4 ´´ W, 74 57´10.4 ´´ W, 16 Nov 2000, H. Ortega, MUSM 71318 ; 1 unknown sex, 17.53 mm SL, San Martin, Moyobamba, Rio Negro, H. Ortega et al. MUSM 33585; 23 unknwn sex 14.53-33.94 mm SL, Loreto, Andoas, Rio Pastaza, quebrada Thiyacil, contermanu, Rio Ucayali, Aug 2007, M Velásquez, MUSM 32582; 6;12♂ 34.47-39.99 mm SL, and 2♀36.68-37.59 mm SL, Rio Neshuya Pucallpa, 6 Jul 1981, H. Ortega, MUSM 0832; 1 unknown sex, 37.32 mm SL, Junin, Satipo, Sta. Viviana, quebrada Santa Viviana, 11 21¨01''S, 14 43'43.35''W, H. Ortega, MUSM 12232; 19♀, 33.54-39.49 mm SL and 11♂ 32.65 – 38.35 mm SL, Ucayali, Pucallpa, Ivita, Piscigranja, 31 May 1983, H. Ortega, MUSM 0160; 75 unknown sex, 23.2-45.4 mm SL, Puno Department, Sandia Province, Candamo River, 358 m.a.s.l., 2 Apr. 1997, H. Ortega et al., MUSM 50976; unknown sex, C&S, 7, 30.0-40.7 mm SL, Puno Department, Sandia Province, Candamo River, 358 m.a.s.l., 2 Apr. 1997, H. Ortega et al. MUSM 50977; 4, sex unknown, 11.86-15.36 mm SL, Rutina, 77 Km al SO de Cobija, 4 Sept. 1996, J Sarmiento, CBF03544; Puno, 200m.12 May 2002, M. Hidalgo, MUSM 30226; 7, sex unknown,19.06-27.47 mm SL, Ucallaly, Coronel, Portillo, campo verde,Uruga, 31 Oct 2000, H. Ortega. ***Knodus*** sp. 2.: BOLIVIA: 2 ♂ 25.68-29.45 mm and 15 ♀ 19.45-35.02 mm SL, Amazonas/Blanco/Tenez Rio Blanco , Trinidacito, 15 Dec 2004, Camacho J., Cordoba L, & Paulli N, UMSS07345;1 unknown sex, 20.04mm SL, Pando, N. Suárez,Aserradero 5 unknown sex, 31.93-36.70 mm SL, Pando , Manuripi, Rio Manuripi sobre isla 0,76 Km arriba del campamento 0,42 Km arriba de P. J. Sarmiento, 18 Sept 1996; 3 unknown sex17.77-31.43 mm SL, Pando, Manuripi, Rio Nereuda, arriba del campamento Nareuda en playa, 4 Sept 1996, J. Sarmiento, CBF04829; :5 unknown sex23.69-32.21 mm SO,Pando, Manuripi, Rio Naeruda, pequeñocaño en el bosque tributario de Naeruda, 5 Sep 1996, J. sarmiento, CBF 04910; 1 ♂38.43 mm SL and 9 unknown sex 25.32-33.23 mm SL, La Paz, Iturralde, campamento Candelaria (PN AMI MADIDI) , 24 Apr 2001, CBF 07423; 23 unknown sex 21.46-38.48 mm SL, Amazonas, Mamore, Madira/chilo, Rio Bolivar-16.757322 latitud-65.432599, 25 Jun 2003, CordovaL., Camacho J. and Flores C. , UMSS04413; 4♀28.45-36.46 mm SL and 6♂29.86-36.99 mm Sl, La Paz, Iturralde,

Ixiamas, 5 Aug 1990, J. Sarmiento, CBF 2358; 1 ♂, 64.76 mm SL, Chsaca, B. boeto,,Serrano, puente Santa Rosa alrededor del camino, 2 Oct 1990, J. Sarmiento, CBF03624; 2, 1 ♂ and 1 ♀, 40.8-43.3 mm SL, La Paz Department, Sudyungas county, Covendo, 16 Nov. 1996, J. Sarmiento & S. Barrera, CBF 06695; 38, 20.3-34.3 mm SL, Amazonas /Mamore,Madera/Blanco, Rio San Joaquin,10 Dec 2004, M. Maldonado, UMSS 05944; 6,30.2-32.6 mm SL, La Paz Department, varias localidades de los Ríos Paraguay, Negro, Apa y Riacho, Sept 1997, S. Barrera & J. Sarmiento, CBF 06368; 2, 55.4-58.5 mm SL., Sudyungas Department, San Juan de Piquendo, 19 Nov 1996, S. Barrera & J. Sarmiento, CBF 6736. ***Knodus*** sp. 3.: PERU: 30 unknow sex, 13.82-21.70 mm SL,Ucayali, Coronel , Portillo, campo verde, quebrada Huicunao, 14 May 2007, H. Ortega, MUSM 33990; 1, unknown sex 31.35 mm SL, Ucayali, padre abad, Rio aguaytia entre Neshuya and Rio Tahuayo, 8 Oct 1986, H. Ortega, MUSM 16831; 51 unknown sex 13.52-26.55 mm SL, Ucayali, Coronel, Portilo, Rio Shesha, 80º5¨46.4´´S & 73º 51´36.4´´W, 230 m12 Fe 20001, H. Ortega, MUSM 13855;30 unknown sex, 14.32-22.55 mm SL, Ucayali, Coronel, Portillo, campo verde, quebrada Huicunao, 14 May 2007, H. Ortega, MUSM 3390; 5♀, 51.8-64.4 mm SL Huanuco, Trigo Maria, Huallaga River, Cueva de las Lechuzas River, 13 Jul. 1998, F Chang & M. Velasquez, MUSM 14966; 2 unknown sex, C&S, 54.4-55.1 mm SL Huanuco, Trigo Maria, Huallaga River, Cueva de las Lechuzas River, 13 Jul. 1998, H. Ortega et al., MUSM 50978. ***Knodus*** sp. 4: PERU: 54 unknown sex 24.58-29.35 mm SL, Madre de Dios, Tahuaman, Iñapari, Rio Tahuamanu, Rio Yaverija, 25 Jul 2004, M. Hidalgo et al. MUSM 24864; 2 unknown sex (C & S), 23.83-2.6.60 mm SL, Madre de Dios, Tahuaman, Iñapari, Rio Tahuamanu, Rio Yaverija, 25 Jul 2004, M. Hidalgo et al., MUSM 71318; 1 unknown sex 42.45 mm SL, Puno, Carabayo, Rio Inambari, Sangaban, Elcamayo, 24 Jun 1994, F. Chang, MUSM 9155; 28 unknown sex 18.77-61.14 mm SL, Puno, Sandia, Rio Candamo,quebrada Unión, 7 Dec 1996, F. Chang, MUSM10335; 3 (C & S), 35.27-48.18 mm SL, Puno, Sandia, Rio Candamo,quebrada Unión, 7 Dec 1996, F. Chang, MUSM 71318; 75 unknown sex 17.30-44.62 mm SL, Puno, Sandia, Rio Candamo, 358 m, 2 Apr 1997, F. Chango MUSM 11120; 7, unknown sex,29.99-41.49 mm SL, Puno, Sandia, Rio Candamo, 358 m, 2 Apr 1997, F. Chango MUSM 71318; 11,16.3-53.9 mm SL Puno, Sandia, Rio Tambopata, quebrada a 500 m del campo, 26 Aug. 1992, H. Ortega et al., MUSM 3693; 87, 20.2-53.0 mm SL Puno, Sandia quebrada Caudama, H. Ortega et al., MUSM 11061. ***Knodus*** sp.5.: PERU: 8 unknown sex20.75 -31.39 mm SL, Cusco, La Convención, Echarate, Urubamba, Rio Parotori, Rio Poyoriari, 20 May 2009, H. Ortega, MUSM36066; 19 unknown sex 12.69-24.64 mm SL, Cusco, Echarate, cuenca del bajo Urubamba, Rio Camisea, playa paisita,370 m, 30 May 2005, H. Ortega, MUSM 30529; 30, 25.5-49.3 mm SL Ucayali, padre Abad, Aguaytia, Rio Aguaytia, Rio Negro (09º02’34.2” S, 75º30’45.5”W), 2 Nov 1999, H. Ortega, MUSM 15866; 19,11.5-24.2 mm SL Cusco, Echarate, cuenca del bajo Urubamba, Rio Camisea, playa Paisita, 30 Apr 2005; 74,17.1-45.3 mm SL Puno, Sandia, Rio Candamo, 358 m.a.s .l., 2 Apr 1997; 62,23.4-34.8 mm SL Ucayalli, Coronel, Portilla, cuenca río Sheshen, Río Tahuayo (08º 06´21” S, 73º 55´33,7”W), 225 m.a. s. l., H. Ortega et al., MUSM 17760. ***Othonocheirodus eigenmanni***: All from BOLIVIA: 11♀, 37.5-63.0 mm SL,Potrero, Santa Cruz de IchiloPN-AMI Amboro/San Juan del p, J. Sarmiento & S. Barrera, CBF 06023; 1 unknown sex (C & S), 36.33 mm SL, Potrero, Santa Cruz de IchiloPN-AMI Amboro/San Juan del p, J. Sarmiento & S. Barrera, CBF 06023; 7♀, 28.4-46.1 mm SL, Cochabamba Department, Chapare province, Villa Tunari (15º58’04.02” S, 65º24’56.74”W) 298 m.a.s.l., 20 Jun 1983, J. Sarmiento & S. Barrera, CBF 0021; C&S, 2 unknown sex, 43.4-50.2 mm SL, Santa Cruz Department, Ichilo PN AMI, Amboro, San Juan del Potrero (17º48’59.82” S, 64º13’00.00”W) 2289 m.a.s.l., IUQ 3802; C&S, 2 unknown sex, 45.3-45.6 mm SL, collected with Holotype, IUQ 3788; C&S, 2♀, 34.76-36.91mm SL, Cochabamba Department, Chapare Province, Villa Tunari, 20 Jun 1983, J. Sarmiento

& S. Barrera, IUQ 3799. ***Piabina thomasi***: All from BOLIVIA: Holotype, 54.2 mm SL sex unknown, Paraná-Paraguay system, Lipeo River, tributary of Bermejo River between Argentina-Bolivia (22º 44'51,57" S, 64º 20'30,51"W) 393 m.a.s.l., Aug. 1936, ANSP 68740; 10, 3♂and 7♀, 40.3-51.7 mm SL, Chuquisaca Department, H. Stiles Province, Bermejo Ichilo-Mamoré River Basin (17º 48'59.82"S, 64º13'00.00"W), 2289 m.a.s.l., 2 km straight line distance south eastern of Monteagudo, J. Sarmiento & S. Barrera, CBF 01198; 2♂ 33.86-57.63 mm SL and 8♀26.53-40.25 mm SL, Tarija, gran chaco 1 Km en línea recta al S.O. de Villa montes, 2 Oct 1988, J. sarmiento, CBF 01228; 2♀, 33.7-49.6 mm SL, del Plata/ Pilcomayo River, Pilaya River, 12 Jul. 2005, L. Córdova, L. Camacho, J. Maldonado M & F. Carvajal, UMSS 00806; 12, 8 ♂ and 4 ♀, del Plata/Bermejo, Emborozu, 12 Jul. 2005, L. Córdova, L. Camacho, J. Maldonado M & F. Carvajal, UMSS 00740; 6 unknow sex, 48.09-58.60 mm SL, Plata/Bermejo, Emborozu, 12 Jul. 2005, L. Córdova, L. Camacho, J. Maldonado M & F. Carvajal, UMSS 00740; 36, 1♂ and 35♀, 17.7-50.4 mm SL, del Plata / Bermejo, Orosas River, 12 Jul. 2005, L. Córdova, L. Camacho, J. Maldonado M & F. Carvajal, UMSS 00805; 36, 1♂, 10♀ and 25 unknown sex, 21.3-57.3 mm SL del Plata/Bermejo, Guadalquivir River, 10 Jul. 2006, L. Córdova, L. Camacho, J. Maldonado M & F. Carvajal, UMSS 03131; 1♂, 43.1 mm S.L, del Plata/Bermejo, Bermejo/ Gran de Tarija, Tarija River, 21 Nov. 2006, L. Córdova, L. Camacho, J. Maldonado M & F. Carvajal, UMSS 04945; 3♀, 22.3-48.4 mm SL del Plata/ Bermejo, Grande de Tarija/Tarija, Salinas River, 5 Oct. 2004, L. Córdova, L. Camacho, J. Maldonado M & F. Carvajal, UMSS 04530; 11,1♂ and 10♀, 22.4-45.5 mm SL del Plata-Bermejo, Arroyo Toro, 1 Jul. 2006, L. Córdova, L. Camacho, J. Maldonado M & F. Carvajal, UMSS 5106; 1♀, 52.3 mm SL, Amazon-Mamoré, Salado River (17º30'46.20" S, 64º48'30.56"W), 1862 m.a.s.l., 11 Jul. 2005, J. Maldonado M & Cordova, UMSS 00719; 8♀, 27.6-48.4 mm SL, Amazon/ Itenez, San Pablo/ Parapeti, Heredia River, 23Oct. 2005, F. Carvajal, C. Zawadzi de La Barr & F. Carvajal, UMSS 00891; 3 sex unknown, 60.8-71.4 mm SL, del Plata / Bermejo, Bermejo/ Gran de Tarija, Tarija River, Saycan River, 6 Oct. 2004, L. Córdova, L. Camacho, J. Maldonado M & F. Carvajal, UMSS 04968; 21♀, 14.4-38.4 mm SL, BOLIVIA: Salado River, M. Maldonado, J. Camacho & L. Córdova., UMSS 00699; 4 sex unknownn, C&S, 28.70-31.21 mm SL, Salado River, L. Córdova UMSS 04968, 4 unknown sex (C&S), 30.4-33.6 mm SL, Salado River, L. Camacho, J. Maldonado M & F. Carvajal, UMSS 01002.

RESULTS

Taxonomic key to the species of *Bryconamericus* from the upper Amazon River Basin of Peru and Ecuador

A. Northeastern Peru and eastern Ecuador, Napo, Marañon, Ucayali, and Huallaga river drainages (Fig.2A).

1a. Humeral spot vertically elongated or absent **2**
1b. Humeral spot round ***B. osgoodi*** Eigenmann & Allen 1942

2a. Humeral and caudal peduncle spots present; four or more teeth on maxilla ***B. phoenicopterus*** Cope 1872
2b. Humeral and caudal peduncle spots absent; three or fewer teeth on maxilla ***B. abalio* sp. n.**

B. Southeast sector, Madre de Dios-Beni-Mamore, Urubamba, Inambari, Tambopata Rivers (Fig.2B).

1a. Upper jaw obviously longer than lower; snout pointed; without hooks on fins rays ***B. bolivianus*** Pearson 1924
1b. Upper jaw not significantly longer than lower; snout bluntly rounded; with hooks on fin rays **2**

2a. Pectoral-fin tip not reaching pelvic-fin insertion; anal-fin origin at vertical through first simple anterior dorsal-fin rays; humeral spots round ***B. pachacuti*** Eigenmann 1927

2b. Pectoral-fin tip reaching pelvic-fin insertion; anal-fin origin at vertical through posterior branched dorsal-fin rays; humeral spot vertically elongated ***B. parapetiensis* sp. n.**

Systematic accounts

In the following species accounts we present the known species of *Bryconamericus* and those described herein from the upper Amazon River Basin in Bolivia and Peru and the Pacific Coast of Peru. The order of the species accounts is that of their appearance in the keys. However, the only species recognized for the Pacific in Peru, *B. lambayequensis* sp.n., is excluded of the key.

***Bryconamericus phoenicopterus* (Cope 1872)**

(Tables 1-2, 5, Figs.1, 2A, 3A, B).

Tetragonopterus phoenicopterus Cope 1872: 261. Type locality: PERU, Ambiyacu River, Amazonia. Holotype: ANSP 8093.

Bryconamericus phoenicopterus Eigenmann 1910, 3: 434 (from the Ambyiacu River).

Material examined

All from ECUADOR: 1 C&S, 64.1 mm SL and 1 C&S, 59.1 mm SL, Morona-Santiago Province, Gualaquiza River, 22 Sep. 1978, R. Barriga IUQ 3135 and IUQ 3153; 200, 24.6-65.7 mm SL, Zamora-Chinchipe Province, beach near military base, lower Mayaicu River, (3°58´15”S, 78°41´15”W), 18 Aug. 1993, MEPN 2120; 11, 34.6-58.3 mm SL, Zamora-Chinchipe Province, Nangantza, beach River in front of military base, Mayaicu, 18 Jul. 1993, R. Barriga, MEPN 44; All from PERU: holotype, Ambyiacu Loreto River, Maynas Province, near Pebas, Amazon tributary (7o 46’32,62”S, 77º 53’46,49”W), 2297 m.a.s.l., ANSP 8093;4, 31.1-32.7 mm SL, San Martin Department, Tarapota, Morales, San Antonio, Cumbaza River, 18 Sep. 1998, H. Guevara et al., MUSM 20722; 1, Amazonas Department, Bagua, Chiriaco River, Nazareth, 15 Feb. 1978, H. Ortega, MUSM 10248; 93,19.2-42.1 mm SL, Pasco Department, Oxapampa, Palcazú, Iscozacin, B. Rengifo & M. Gómez, MUSM 29984; 18, 23.52-66.30 mm SL, Amazonas Department, Condorcanqui, Marañon, Comainas river, H. Ortega MUSM 6158; 2 (C & S), unknown sex, 51.71-54.22 mm SL, Amazonas Department, Condorcanqui, Marañon, Comainas river, H. Ortega MUSM 6158; 1, 24.7 mm SL, San Martir Department, M. Caceres, Huicungo, PNRA, R. Abisco, puesto El Churo, H. Ortega, MUSM 32610; 5, 36.0-42.26 mm SL, Junin department, Mashira,Rio Tambop, 393 masl, G. Trevejo et al., H. Ortega, MUSM 37902.

Diagnosis

Bryconamericus phoenicopterus differs from all congeners examined by the absence of contact between the second and third infraorbital canals (*vs.* canals in contact) except from *B. singularis, B. tolimae,* and *B. turiuba*, however it differs from those species in lacking the humeral spot or having a humeral spot with only one circular or rectangular layer of pigment (*vs.* humeral spot present and with two anteriorly overlapping layers of pigment).

Description

Morphometric data given in Table 1-2. Greatest body depth at dorsal-fin origin (mean maximum body depth about 23% SL). Area above orbits flat. Dorsal profile of head and body oblique from supraoccipital to dorsal-fin origin and from last dorsal-fin ray to caudal-fin base. Ventral profile of body convex from snout to anal-fin base. Caudal peduncle laterally compressed. Head and snout short, mandibles equal, mouth terminal, lips soft and flexible and not covering outer row of premaxillary teeth; ventral border of upper mandible curved or oblique; posterior edge of maxilla extends beyond anterior edge of orbit; opening of posterior nostrils vertically ovoid; opening of anterior nostrils with membranous flap. Distal pectoral-fin tip not reaching pelvic-fin insertion. Pelvic-fin tip reaching anal-fin origin.

Premaxillary with two rows of teeth. Three to five teeth of outer row multicuspid. Inner premaxillary row with four multicuspid teeth almost equal in size. Maxilla short, with length less than three-quarters of second infraorbital length, anterior margin with four to five uni-, bi-and tricuspid teeth. Dentary with three to four large, front, tricuspid teeth with central cusp largest, followed by five or six smaller uni- or tricuspid teeth.

Lateral line complete, perforated scales 31-42. Scale rows between dorsal-fin origin and lateral line 5-7; scale rows between lateral line and anal-fin origin 5-8; scale rows between lateral line and pelvic-fin insertion 6-7. Predorsal scales arranged in regular series. Dorsal-fin rays iii, 7-8, dorsal-fin origin located posterior to middle of body and to vertical through pelvic-fin origin. Anal-fin rays iii-iv, 21-28. Anal-fin origin anterior to vertical through base of first dorsal-fin ray. Pectoral-fin rays ii, 8-11. Pelvic-fin rays i,6,i. Pelvic-fin origin anterior to vertical through dorsal-fin origin. Total number of vertebra 36-37.

Secondary sexual dimorphism

Not observed.

Color in alcohol

Dorsum, sides and ventrum of body brown or yellow. Body with dark lateral stripe from posterior margin of humeral spot to caudal-fin base, but not continuing on to middle caudal-fin rays. Humeral spot absent or consisting of only one circular or rectangular shaped pigment layer. Caudal peduncle spot dark, rounded, continuing on to middle caudal-fin rays, absent in immatures. All fins hyaline with dark chromatophores on rays.

Distribution

Bryconamericus phoenicopterus is only found in the Marañon River Basin, Loreto, Gualaquiza River Amazon River Basin, Peru and Ecuador.

Comments

Fowler (1906) assigned this species to the genus *Astyanax*, reported morphometric and meristic data, illustrated it and described its color pattern as *Astyanax phoenicopterus* (Cope). However, Eigenmann (1910: 434) first proposed that this species is *Bryconamericus.* Based on reexamination of the specimens, we concur that Fowler's assignation to *Astyanax* was incorrect.

***Bryconamericus abalio* sp. n.**

lsid:zoobank.org:act:5BBB1A81-6268-4FDF-8CBD-922A1E196C66

(Table 3, Figs.2A, 4)

Holotype: PERU: 28.9 mm SL., Ucayali, Coronel, Portillo, Campo Verde km 56, F. Bosadre Road (8°50'03" S, 75°34'10"W), 258 m.a.s.l, 18 Sep. 2000, H. Ortega, MUSM 50972.

Paratypes: All from PERU: 18, 17.2-30.2 mm SL; Creek at km 56 Federico Basadre Road, entre Campo Verde and Neshuya (08°36'38.42" S, 74°56'17.14"W) 183 m.a.s.l., H. Ortega, MUSM 34013; 3 (C & S), unknow sex, 21.69-29.27 mm SL; Creek at km 56 Federico Basadre Road, entre Campo Verde and Neshuya (08°36'38.42" S, 74°56'17.14"W) 183 m.a.s.l., H. Ortega, MUSM 71313; 18, 13.2-19.0 mm SL; Ucayali, Lower area of the Aguaytia River, between Neshuya and Tahuayo River (08°36'38.42" S, 74°59'10"W) 181 m.a.s.l, 8 Oct. 1986, H. Ortega, MUSM 34001; 3♀, Pasco Department, Ucayali River drainage, Oxapampa, Iscozacin, Mayo River, 20 May 2004, B. Rengifo, MUSM 29947; 9, 1♂ and 8♀, 21.6-29.5 mm SL, Ucayali Department, Atalaya, Sepahua, Huayashi Creek, 26 Jul. 2007, H. Ortega et al., MUSM 35771; 22♀, 15.9-32.2 mm SL, Ucayali Department, Padre Abad, Aguaytia River, Shambo River (8° 50'03"S, 75°0 34'10"W), 258 m.a.s.l, 26 May 2009, R. Oliveira et al., MUSM 37348; 50, 9♂ and 41♀,19.6-35.2 mm SL, Pasco Department, Oxapampa, Puerto Bermudez, Ucayali River, Ataz Creek, 9 Aug. 2002, E. Warh, MUSM 20562; 7♂ and 22♀, 24.29-40.84 mm SL, Junin,Satipo,Mashira,Mavado Creek,6 Jun 2009,G. Trevejo, MUSM 37818; 2 unknow sex (C & S) 47.49-51.23 mm SL, Junin,Satipo,Mashira,Mavado Creek,6 Jun 2009,G. Trevejo, MUSM 71313; 27, 2♂ and 25♀, 20.4-38.3 mm SL, Cusco Department, Convención, Echarate, CCNN Camaná, Ucayali River drainage. Upper Urubamba, 29 Sep. 2008, F. Corahua, MUSM 34324; 3, 23.2-28.6 mm SL, Pasco Department, Oxapanpa, Pto. Bermudez, tres islas en el Rio Apumacayali, Ucayali River drainage. Upper Urubamba, 26 May 2004, B. Rengifo, MUSM 30199; 38♀, 14.8-25.5 mm SL, Pasco Department, Oxapampa, Villa Rica, San Pedro de Pichanos village, Ucayali River drainage, Pichanos Creek, 3 Jun. 2004, MUSM 30363; 38,3♂ and 35♀, 22.2-32.5 mm SL, Ucayali Dept., Padre Abad, Aguaytia River, Huiango Creek Km 18 road Curimana, 14 May 1997, H. Ortega, MUSM 16144; 1♀, 28.6 mm SL, Junin Dept., Ucayali River drainage, Perené River road to Satipo, 21 Sep 1995, H. Ortega et al. MUSM 12329.

Diagnosis

Bryconamericus abalio sp. n. differs from all congeners by lacking a humeral spot (vs. presence of a humeral spot with one or two layers that overlap in its anterior part). Moreover, *Bryconamericus abalio* sp. n. differs from *B. phoenicopterus* in eye diameter (42.6-54.9% HL *vs.* 24.7-42.6% HL), and interorbital width (31.1-38.7% HL *vs.* 21.8-30.5% HL). It further differs from congeners from the Pacific coast of Peru *B. lambayequensis* sp. n. in eye diameter (42.6-54.9% HL *vs.* 34.6-42.2% HL). *B. abalio* sp.n. differs from the other sympatric congeners by the number of maxillary teeth (1-3 *vs.* 4-7); by the absence of a humeral and caudal spot (*vs.* present), with the following exceptions: *B. ichoensis* which has no peduncle spot but does have a dark lateral stripe that continues on to the middle caudal-fin rays, and also differs in the number of lateral line scales (37-39 *vs.* 33-36 in *B. ichoensis*) and by the number of branched anal-fin rays (20-23 *vs.* 27-30 in *B. ichoensis*); *B. galvisi* which has no peduncle spot, but differs in lateral line scale number (37-39 *vs.* 40-42 in *B. galvisi*) and by the number of predorsal scales (11-13 *vs.* 14-17 in *B. galvisi*).

Description

Morphometric data given in Table 3, holotype 28.9 mm SL. Greatest body depth at dorsal-fin origin (mean maximum body depth about 26% SL). Area above orbits flat. Dorsal profile of head and body oblique from tip of supraoccipital process to dorsal-fin origin and from last dorsal-fin ray to caudal-fin base. Ventral profile of body convex from snout to anal-fin base. Caudal peduncle laterally compressed. Head and snout short, mandibles equal, mouth terminal, lips soft and flexible and not covering outer row of premaxillary teeth; ventral border of upper mandible curved or oblique; posterior edge of maxilla extending beyond anterior edge of orbit; opening of posterior nostrils vertically ovoid; opening of anterior nostrils with membranous flap. Distal pectoral-fin tip reaching pelvic-fin insertions. Pelvic-fin tip not reaching anal-fin origin. Premaxillary with two rows of teeth. Three or four teeth of outer row tricuspid. Inner premaxillary row with four pentacuspid teeth approximately equal in size. Maxilla large, with length more than three-quarters of second infraorbital length, anterior margin with one to three tricuspid teeth. Dentary with three to four large, front, tricuspid teeth with central cusp largest, followed by three or four smaller unicuspid teeth.

Lateral line complete, perforated scales 35-39 (*37, mode 37). Scale rows between dorsal-fin origin and lateral line 5; scale rows between lateral line and anal-fin origin 4-5 (5*, mode 5); scale rows between lateral line and pelvic-fin insertion 4-5 (4*, mode 5). Predorsal scales arranged in regular series. Dorsal-fin rays iii, 7 with 9 proximal pterygiophores; first unbranched ray approximately one-half of second unbranched ray length. Dorsal-fin origin located posterior to middle of body and anterior to vertical through pelvic-fin origin. Anal-fin rays iii-iv, 20-25 (iv, 20*). Anal-fin origin anterior to vertical through base of first dorsal-fin ray. Pectoral-fin rays ii, 9-10 (ii, 10*). Pelvic-fin rays i,6,i. Pelvic-fin origin anterior to vertical through dorsal-fin origin. Total number of vertebra 38-40.

Secondary sexual dimorphism

Not observed.

Color in alcohol

Dorsum yellowish except posterior part of head around supraoccipital that has a round brownish-yellow spot, sides and ventrum yellowish. Dark lateral stripe present from posterior opercle to caudal peduncle, less intense anterior to vertical through dorsal-fin origin. No humeral or caudal peduncle spot. Middle caudal-fin rays possess a high concentration of dark chromatophores, just as in distal portions of dorsal and anal fins; pectoral and pelvic fins hyaline.

Diet

Contents of one stomach, that measured 4.2 x 3.1 mm and had four pyloric caeca, contained an ant (Hymenoptera: Formicidae).

Distribution

Bryconamericus abalio sp.n. is so far only known from the Ucayali River system, Amazon Basin, Peru (Fig. 2A).

Etymology

The Greek adjective abalio sp.n. means without spots, in reference to the absence of the caudal peduncle and humeral spots and on the sides of the body in adults and immature.

***Bryconamericus osgoodi* Eigenmann and Allen 1942**

(Table 1, Figures 2A, 5).

Bryconamericus osgoodi Eigenmann & Allen 1942: 225, pl.14, Figure 6. Type locality: Moyobamba, Huallaga River Basin, Peru. Holotype: CAS 40828.

Description

Morphometric data given in Table 1. Greatest body depth at dorsal-fin origin (mean maximum body depth about 34.0% SL). Area above orbits flat. Dorsal profile of head and body oblique from supraoccipital to dorsal-fin origin and from last dorsal-fin ray to caudal-fin base. Ventral profile of body convex from snout to anal-fin base. Caudal peduncle laterally compressed. Head and snout short, mandibles equal, mouth terminal, lips soft and flexible and not covering outer row of premaxillary teeth; ventral border of upper mandible curved or oblique; posterior edge of maxilla extends to anterior edge of orbit; opening of posterior nostrils vertically ovoid; opening of anterior nostrils with membranous flap. Distal pectoral-fin tip not reaching pelvic-fin insertion. Pelvic-fin tip not reaching anal-fin origin. Maxilla long, with length equal to second infraorbital length, anterior margin with two to six uni-, bi- and tricuspid teeth.

Lateral line complete, perforated scales 40. Scale rows between dorsal-fin origin and lateral line 7; scale rows between lateral line and anal-fin origin 7; scale rows between lateral line and pelvic-fin

insertion 7. Predorsal scales arranged in regular series 12. Dorsal-fin rays iii, 7, dorsal-fin origin located posterior to middle of body and to vertical through pelvic-fin origin. Anal-fin rays iii, 20. Anal-fin origin posterior to vertical through base of last dorsal-fin ray. Pelvic-fin origin anterior to vertical through dorsal-fin origin.

Secondary sexual dimorphism

Not observed.

Material examined

PERU: Holotype, sex unknown, 54.1 mm SL, Moyobamba, Huallaga River Basin, CAS 40828.

Distribution

Bryconamericus osgoodi in only known from its type locality, the Huallaga River drainage in Peru**.**

Comments

More specimens are needed to determine the correct generic placement and possible synonymy of this species. Therefore, the diagnosis of this species is not included.

***Bryconamericus bolivianus* Pearson 1924**

(Tables 4 and 5, Figures 2B, 6A, B, 7).

Bryconamericus bolivianus Pearson, 1924: 43, pl. 10, figure 4. Type locality: Colorado River, lower Bopi, Popoi and Bolivia; Fowler 1948: 67 (lists, distribution).

Bryconamericus grosvenori Eigenmann 1927: 365, pl. 99, fig. 2. Type locality: Comberciato River, Urubamba River drainage, Peru.

Material examined

All from BOLIVIA: 81 unknown sex, 18.64-25.32 mm SL, Amazonas/Beni, Madera/Ato Beni, arroyo Sapecho-Mapuri Chuqui-length 17. 33449 , lat.-67.386259 , Zubieta J. Quinteros D., Aguilar F. , UMSS08818; 1, 33.9 mm SL, syntypes of *Bryconamericus bolivianus*, La Paz, Amazon River Basin, Colorado River, tributary to lower Bopi River 10 miles above Huachi (=San Miguel de Huachi), 1 Sep. 1921, CAS 39506; 2, type series, 28.2-28.9 mm SL, Beni, Amazon River Basin, upper Beni River, Pena Colorado, four miles below Huachi, 1 Sep. 1921, CAS 39508; No Type: 5, 26.5-35.2 mm SL, Santa Cruz, Ichilo County, PN-AMI Amboro/Mairana, 19 May 1996, J. Sarmiento & S. Barrera, CBF 07212; 5 unknown sex, 26.81-42.92 mm SL, Santa Cruz, Ichilo, parquet nacionalyane manu integrado Amboro, Maurana, J. Sarmiento, CBF 07212; 11♀, 28.4-43.3 mm SL, Santa Cruz Department, Ichilo Province, Parque Nacional and integrated management area Amboro, 16 May 1996, J. Sarmiento & S. Barrera, CBF 07178; 3♀, 35.2-40.0 mm SL, Santa Cruz Department, Ichilo Province, Parque

Nacional and integrated management area Amboro-Santa Rosa (10º22’52.72” S, 65º23’17.28”W) 104 m.a.s.l., 20 May 1996, J. Sarmiento & S. Barrera, CBF 06027;50, 19.1-30.6 mm SL, Amazon/Madeira, Beni/Bopi, Irpa Chuqui River, San Pablo, J. Zuleta, E. De La Barra & E. Campos, UMSS 09850; 3, 22.5-24.3 mm SL, Amazon/Beni, Madeira/Alto Beni, Arroyo Tacuaral-Tohomonoco, 11 Dec. 2008, M. Maldonado, UMSS 08937; 32, 20.4-26.1 mm SL Amazon/Beni Madeira/Alto Beni, Arroyo Tohomonoco, Tohomonoco military base, 9 Dec. 2008, M. Maldonado, UMSS 08922; 2, 22.3-22.8 mm SL, Amazon/Beni, Madeira/Alto Beni, Tacuaral Creek, Tohomonoco, 4 Nov. 2009, M. Maldonado, UMSS 10018; 22, 22.1-28.4 mm SL Amazon/Beni, Madeira/Bopi, Amarillo River, Floriaty, 22 Oct. 2009, M. Maldonado, UMSS 09856; 27, 22.2-30.9 mm SL, Amazon/Beni, Madeira/Bopi, Carrasco River, Carrasco, 15 Oct. 2009, Zubieta J, De La Barra E, Campos, UMSS10099; 16,14.1-28.1 mm SL, Del Plata/Bermejo, Pilcomayo River, 8 Jul. 2005, Cordova L, Camacho J, & Maldonado, UMSS 00809; 48, 14♀ and 34 unknown sex, 17.8-28.4 mm SL, Beni Department, in San Miguel of Huachi locality, Amazon/Madeira, Beni/Cotacajes, tributary of Cotacajes, 5 Nov. 2009, Zubieta de La Barra, E. Turquino E, UMSS 09900; 4 (C & S) unknown sex 24.18-28.01 mm SL, Beni Department, in San Miguel of Huachi locality, Amazon/Madeira, Beni/Cotacajes, tributary of Cotacajes, 5 Nov. 2009, Zubieta de La Barra, E. Turquino E, UMSS 09900; 50♀, 21.2-34.7 mm SL, Beni Department, Amazon/Madeira, Beni/Kafka, Tajlihui River in Alcoche, 16 Oct. 2009,M. Maldonado, UMSS 10080; 2 unknown sex, 20.81-24.77 mm SL, La Paz, F Tamayo, 13 Jun 1977, J. Sarmieto, CBF 06882; 10 unknown sex,17.12-23.37 mm SL,J. Ballivian, San Borja Puente del Rio Maniqui en el camino San Borja-Trinidad, J. samiento, CBF 03381; 50 unknown sex, 19.130.6 mm SL, Beni Department, Amazon /Madeira, Beni/Bopi, Irpa Chuquiv River, San Pablo, M. Maldonado, UMSS 09850; 50, 24♀ and 26 unknown sex, 21.1-36.5 mm SL, Beni Dept., Amazon/Madeira, Beni/Kaka, Naranjakata River in San Jose, 16 Oct. 2009, Zubiela J De la Barra E , Campos E , UMSS 10093; All from PERU: (holotype of *Bryconamericus grosvenori*), 62.6 mm SL, MCZ 31562; 4, 29.1-40.2 mm SL, Cusco, La Convención, Echarate, CCA, upper Urubamba, Monte Camelo, Igorotoshiari Creek, H. Ortega, MUSM 31314; 8, 26.3-37.0 mm SL, Cusco, La Convención, Echarate, Urubamba, Pirotón River, Parotori Creek (13º14’27.15” S, 72º18’37.30”W), 3411 m.a.s.l., 21 May 2009, R. Quisque, MUSM 36033; 8,27.0-36.7 mm SL, Cusco, La Convención, Urubamba River, Icha River, Mayapo, Mayapo River, 25 May 1997, F Chang, MUSM 12115; 26, 29.0-40.7 mm SL, Junin, Chanchamayo, the Cimo, Poncantamambo, H. Ortega et al. MUSM 3569; C&S, 4, 32.3-38.0 mm SL, Junin, Chanchamayo, the Cimo, Paucantambo, H. Ortega, MUSM 50980; 5, 29.0-40.0 mm SL, Junin, Chanchamayo, Colorado River, 7 Dec. 1987, H. Ortega, MUSM 12268; 65, 29♀ and 36 unknown sex, 21.4-36.4 mm SL, Ayacucho, Huamanga, Yucay River, 20 Aug. 2004, H. Ortega, MUSM 19564; 50, 19.1-45.8 mm SL, Cusco, La Convención, Echarate, CCA Urubamba, Shimaa River, 21 Nov. 2007, R. Quiripe et al., MUSM 32340; C&S, 3, 18.9-26.4 mm SL, Cusco, La Convención, Echarate, CCA Urubamba, Shimaa River, 21 Nov. 2007, H. Ortega, MUSM 50979.

Diagnosis

Bryconamericus bolivianus differs from all congeners by having the preventral region keeled (*vs.* not keeled), by the pores of the lateral line not reaching scales at caudal-fin base (vs. pores of the lateral line reaching scales at caudal-fin base). The lateral process of the palatine is joined to the ectopterygoid by means of a fold **(**vs. lateral process of palatine overlapping or not in contact with ectopterygoid**)**.

Description

Morphometric data given in Table 4. Greatest body depth at dorsal-fin origin (mean maximum body depth about 20.0% SL). Area above orbits flat. Dorsal profile of head and body oblique from supraoccipital to dorsal-fin origin and from last dorsal-fin ray to caudal-fin base. Ventral profile of body convex from snout to anal-fin base. Caudal peduncle laterally compressed. Head and snout short, mandibles not equal, upper jaw protruded, mouth terminal, lips soft and flexible and not covering outer row of premaxillary teeth; ventral border of upper mandible curved; posterior edge of maxilla extending beyond anterior edge of orbit; opening of posterior nostrils vertically ovoid; opening of anterior nostrils with membranous flap. Distal pectoral-fin tip not reaching pelvic-fin insertion. Pelvic-fin tip not reaching anal-fin origin.

Premaxillary with two rows of teeth. Two to four teeth of outer row tricuspid. Inner premaxillary row with four tricuspid teeth approximately equal in size. Maxilla short, less than three-quarters of second infraorbital length, anterior margin with three to five tricuspid teeth. Dentary with three to four large, tri-to multicuspid front teeth with central cusp largest, followed by three or four smaller tricuspid teeth.

Lateral line complete, perforated scales 35-48. Scale rows between dorsal-fin origin and lateral line 4-5; scale rows between lateral line and anal-fin origin 3-4; scale rows between lateral line and pelvic-fin insertion 3-4. Predorsal scales arranged in regular series. Dorsal-fin rays ii-iii, 7-8. Dorsal-fin origin located posterior to middle of body and posterior to vertical through pelvic-fin origin. Anal-fin rays ii-iii-iv, 12-15. Anal-fin origin posterior to vertical through base of first dorsal-fin ray. Pectoral-fin rays ii-iii, 8-11. Pelvic-fin rays i,6,i. Pelvic-fin origin anterior to vertical through dorsal-fin origin. Total number of vertebra 36-37.

Secondary sexual dimorphism

None observed.

Color in alcohol

Dorsum yellowish-brown, sides silvery-green, ventrum yellow. Body silvery-green from humeral spot to caudal-fin base, color not continued onto middle caudal-fin rays. Humeral spot dark, vertically elongated and not prolonged on to upper margin of opercle. Caudal peduncle spot rounded, dark and not prolonged on to middle caudal-fin rays. Fins all light yellow.

Distribution

Bryconamericus bolivianus is found in the Beni River Basin in Bolivia and the Urubamba and Pirotón Rivers in Peru (Fig. 2B).

Comments

Examination of the type specimens in CAS and new material revealed that *Bryconamericus bolivianus*

is very similar to the three species of *Attonitus*, in terms of the general shape of the body (Table 4; Vari & Ortega 2000). However, *B. bolivianus* differ from *Attonitus* by the absence of sexual dimorphism (*vs.* presence), by caudal-peduncle depth (5.6-9.6% SL *vs.* 9.7-11.5% SL), eye diameter (33.3-46.9% HL *vs.* 25.5-31.8% HL); scales between lateral line and anal-fin origin (4-5 *vs.* 3), branched dorsal-fin rays (7 *vs*. 8, except *A. bounites* with 7-8). It differs from *A. bounites* by having a cephalic depression in the predorsal area, the preventral area keeled, and presence of scales at base of caudal-fin.

Although examination of the types of *B. bolivianus* and *B. grosvenori* and available non-type specimens (Table 4, figs. 6, 7) revealed some differences in body depth, length of caudal peduncle, head, eye and snout these differences are probably the result of the comparison when reviewing original descriptions and fresh material of these taxa, since the general aspect of the types of these taxa are very similar (Figs. 7, 8). Furthermore, the meristics are the same in the type specimens. We therefore conclude that *B. grosvenori* is a junior synonym of *B. bolivianus*.

***Bryconamericus pachacuti* Eigenmann 1927**

(Tables 1-2, 5, Figures 2B, 8A, B).

Bryconamericus pachacuti Eigenmann 1927: 376, pl. 99, fig. 3. Type locality: PERU, Santa Ana, Urubamba River. Holotype: MCZ 31563.

Material examined

All from PERU: 5 (C & S) unknown sex, 31.20-40.86 mm SL Junin,Satipo,Mashira,Mavado Creek,6 Jun 2009,G. Trevejo, MUSM 71320; 4 unknown sex, 26.54-33.61 mm SL,Cusco, Echarate, La Convención, H. Ortega et al., MUSM 31122; 22♀, 30.0-62.5 mm SL paratypes, Cusco Department, Amazon River, Urubamba River, CAS 40829; sex, unknown, 68.0 mm SL, holotype, Santa Ana, Urubamba River, MCZ 31563; 1 unknown sex 23.33 mm SL, Huanuco, Pachitea, Yuyapichis, quebrada a 1.5 Km de la boca, 27 Jul. 1988, E. Holm, MUSM 12878; 50♀, 12.3-20.6 mm SL, Huanuco Ucayali Department, River drainage, CCA, Pachitea River, Honoria, Sargento Lores Islands, 4 Jul. 2005, MUSM 28017; 23♀,37.04-65.50 mm SL, Pasco, Oxapampa, río Huancabamba puente, 25 Oct 2005, H. Ortega, MUSM 26590; C&S,2♀,47.58-52.04 mm SL, Junin, Satipo, Mashira, Mavado Creek,6 Jun 2009, MUSM 71320; 2♀, 22.2-25.6 mm SL, Ucayali Department, Padre Abad, Aguaytia River, Shambo River (8° 50’03”, 75°0 34’10”W), 258 m.a.s.l, 26 May 2009, R. Oliveira et al., MUSM 71320, 37348;34♀15.18-28.58 mm SL and 1macho 25.91 mm SL, Ucayali, padre abad, aguaytia, Rio Aguaytia, 29 Oct 2000, H. Ortega, MUSM 33969; 13, 16.36-27.61 mm SL, Junin, Satipo, Cheni, quebrada Pijireni, 269 m.a.s.l., 26 Oct 2006, H. Ortega, et al. MUSM 27058.

Diagnosis

Bryconamericus pachacuti differs from all congeners by humeral spot having just one pigment layer (vs. humeral spot consisting of two pigment layers); caudal-peduncle spots absent (vs. present).

Description

Morphometric data given in Table 1. Greatest body depth at dorsal-fin origin (mean maximum body depth about 22.3% SL). Area above orbits flat. Dorsal profile of head and body oblique from supraoccipital to dorsal-fin origin and from last dorsal-fin ray to caudal-fin base. Ventral profile of body rounded from snout to anal-fin base. Caudal peduncle laterally compressed. Head and snout short, mandibles equal, mouth terminal, lips soft and flexible and not covering outer row of premaxillary teeth; ventral border of upper mandible curved or oblique; posterior edge of maxilla extends beyond anterior edge of orbit; opening of posterior nostrils vertically ovoid; opening of anterior nostrils with membranous flap. Distal pectoral-fin tip not reaching pelvic-fin insertion and pelvic-fin tip not reaching anal-fin origin.

Premaxillary with two rows of teeth. Two to five teeth of outer row multicuspid. Inner premaxillary row with four multicuspid teeth almost equal in size. Maxilla large, with length equal to second infraorbital length, anterior margin with two to four uni-, bi- and tricuspid teeth. Dentary with three to four large, tricuspid front teeth with central cusp largest, followed by five or six smaller uni- or tricuspid teeth. Lateral line complete, perforated scales 34-41. Scale rows between dorsal-fin origin and lateral line 4-7; scale rows between lateral line and anal-fin origin 3-6; scale rows between lateral line and pelvic-fin insertion 3-6. Predorsal scales arranged in regular series. Dorsal-fin rays iii, 7, dorsal-fin origin located posterior to middle of body and to vertical through pelvic-fin origin. Anal-fin rays iii-iv, 17-23. Anal-fin origin anterior to vertical through base of first dorsal-fin ray. Pectoral-fin rays ii, 8-11. Pelvic-fin rays i, 6, i. Pelvic-fin origin anterior to vertical through dorsal-fin origin. Total number of vertebra 37-38.

Secondary sexual dimorphism

Sexually mature males have one row of hooks on branched anal-fin rays 1 to 5, each ray with 1-8 hooks; from 6-9 small hooks on 2-5 branched rays of pelvic-fin, located on both branches of rays, and extending on to anterior-most section; 8-9 hooks on last simple rays.

Color in alcohol

Dorsum, sides and ventrum of body yellow. Body with silvery band from posterior margin of opercle to caudal-fin base, but not continuing on to middle caudal-fin rays. Humeral spot absent in immature specimens; dark and rounded in adults but, not continuing to upper margin of opercle, positioned two or three scales posterior to opercle. Caudal peduncle spot dark, rounded, continuing on to middle caudal-fin rays in specimens adults, absent in immatures. All fins hyaline con dark chromatophores on rays.

Distribution

Bryconamericus pachacuti is found in the Urubamba-Ucayali and Madre de Dios river drainages in Peru and Bolivia (Fig. 2B).

Comments

Since the Ucayali and Madre de Dios River drainages are well separated and fairly distant (about 250 km), it would be interesting to compare geographic variation of purported specimens of this species. However, only three specimens from the Madre de Dios drainage are available at this time.

***Bryconamericus parapeti*ensis sp. n.**

lsid:zoobank.org:act:F5179132-FF09-45B7-A72D-81BFAD38E895

(Table 3, Figs. 2B, 9)

Holotype: BOLIVIA: ♂, 4.3 mm SL, Santa Cruz, Amazon, Iténez, Izozog/Parapeti, Parapeti River drainage upstream from Camiri (10º22'52.72" S, 65º23'17.28"W) 104 m.a.s.l., 22 Oct. 2005, M. Maldonado, UMSS 02228.

Paratypes: BOLIVIA: C&S, 2, 1 ♂ and 1 ♀, 34.3-43.0 mm SL, collected with Holotype, IUQ 3786; 4 (C&S), 3♂and 1♀, 22.5-44.4 mm SL collected with Holotype, G. Zawadzid, M. Maldonado, UMSS 01227; 2 ♂ and 2♀, 33.6 -43.1 mm SL, Santa Cruz, Amazon, Iténez, Izozog/Parapeti, Parapeti River drainage upstream from Camiri (10º22'52.72" S, 65º23'17.28"W) 104 m.a.s.l., 22 Oct. 2005,IUQ 4212.

Diagnosis

Bryconamericus parapetiensis sp. n. differs from all congeners in having a subterminal mouth (*vs.* terminal), except from: *B. patriciae* and *B. pinnavittatus* from which it differs by the number of unbranched pectoral-fin rays (ii vs. i) and dorsal-fin rays (iii,7 vs.ii,8); *B. exodon* from which it differs by the conformation of the anterior humeral spot above the humeral region (which has two pigment layers that overlap in the anterior part of the humeral region vs. only one layer), as well as the position of the ventral pigment layer (number two) of the anterior humeral spot relative to the lateral-line scale series (humeral spot pigment at least in part on dorsal margins of scales in lateral-line series vs. pigment of humeral spot on scale series dorsal to lateral-line) and posterior humeral spot (present vs. absent); *B. iheringii* from which it differs by extension of the pigment layer number one below the lateral line (absent vs. present), posterior humeral spot (present vs. absent). It further differs from *B. guaytarae* by having the lateral line openings as elongate canals (*vs.* lateral line openings as circular pores), and by having an approximately straight lateral line (*vs.* sigmoid).

Description

Morphometric data given in Table 3. Greatest body depth at dorsal-fin origin (mean maximum body depth about 27% SL). Area above orbits convex. Dorsal profile of head and body oblique from supraoccipital to dorsal-fin origin and from last dorsal-fin ray to caudal-fin base. Ventral profile of body convex from snout to anal-fin base and to caudal-fin base. Caudal peduncle laterally compressed. Head and snout short, mandibles not equal, mouth subterminal, lips soft and flexible and not covering outer row of premaxillary teeth; ventral border of upper mandible curved; posterior edge of maxilla

not reaching anterior edge of orbit; opening of posterior nostrils vertically ovoid; opening of anterior nostrils with a membranous flap. Pectoral-fin tips of reach pelvic-fin insertion. Distal tip of pelvic-fin reaching anal-fin origin or not.

Premaxillary with two rows of teeth. Four or five teeth of outer row tricuspid. Inner premaxillary row with four tricuspid teeth almost equal in size. Maxilla very short with length more than three-quarters of second infraorbital length, anterior margin with two to four tricuspid teeth. Dentary with four to five large, front, tri- or tetracuspid teeth with central cusp largest, followed by eight to nine small tricuspid teeth (Fig.3).

Lateral line complete, perforated scales 35-38 (37*, mode 36). Scale rows between dorsal-fin origin and lateral line 4-6 (5*, mode 5); scale rows between lateral line and anal-fin origin 5-6 (5*, mode 5); scale rows between lateral line and pelvic-fin insertion 4-6 (5*, mode 5). Predorsal scales arranged in regular series. Dorsal-fin rays iii, 7 with 9 proximal pterygiophores; first unbranched ray approximately one-half length of second unbranched ray. Dorsal-fin origin located near middle of body and posterior to vertical through pelvic-fin origin. Anal-fin rays iii-iv, 12-15 (iii, 14*). Anal-fin origin anterior to vertical through base of first dorsal-fin ray. Pectoral-fin rays ii, 9-12 (ii, 10*). Pelvic-fin rays i,6,i. Pelvic-fin origin anterior to vertical through dorsal-fin origin. Total number of vertebra 36-39.

Secondary sexual dimorphism

Sexually mature males have one row of hooks on branched anal-fin rays 1 to 12, each ray with 2-12 hooks; 5-15 large hooks on all branched pelvic-fin rays, located on both branches of rays, and extending on to anterior-most section.

Color in alcohol

Dorsum, sides and ventrum of body yellow, dorsal area with reticulated pattern that extends from posterior margin of head near supraoccipital to caudal-fin. Body with dark midlateral stripe from two scales posterior to humeral spot to caudal-fin base, but not continuing on to middle caudal-fin rays. Humeral spot dark, vertically elongated, not continuous to upper margin of opercle, positioned two or three scales posterior to opercle. Caudal peduncle spot dark, diffuse, triangular, not continuing on to middle caudal-fin rays. All fins light yellow.

Diet

One stomach, length 8.6 mm, width 3.6 mm with 6 pyloric caeca, contained Ephemeroptera and tiny stones.

Distribution

Bryconamericus parapetiensis sp. n. is so far known exclusively from the Parapeti River, upstream from Camiri, Bolivia (Fig. 2B).

Etymology

Bryconamericus parapetiensis sp. n. is a noun in apposition and is named for the Parapeti River, where the type series was collected.

***Bryconamericus lambayequensis* sp. n.**

lsid:zoobank.org:act:023D6E0F-1CF0-4841-B2B0-83739E9074AC

(Table 3, Figures 2A, 10).

Holotype: PERU: ♂, 41.3 mm SL, Pacific Coast, Lambayeque, Ferreñafe, Cañaris, Huancamba River, Cañariaco River mouth, 6o38'50.91'' S, 79o27'51.01'' W, 19 Sep. 2007, B. Rengifo & U. Meza, MUSM 49506.

Paratypes: C&S, 4 sex unknown, 38.61-41.35 mm SL collected with Holotype, IUQ 3800; 24, 9♂ and 15♀, 29.0-41.3 mm SL, collected with Holotype, H. Ortega et al., MUSM 31598; C&S, 5 unknown sex, 39.3-41.9 mm SL, collected with Holotype, H. Ortega et al., MUSM 49507.

Diagnosis

Bryconamericus lambayequensis sp. n. differs from all congeners by the number of transverse scales in the series from the supraoccipital process tip to the dorsal margin of the opercle (five or more *vs*. four or fewer, except *B. arilepis* (Román-Valencia *et al.* 2008b) from which it differs by the number of lateral-line scales (35-40 *vs.* 51-54), by the number of scales from the lateral line to the dorsal-fin origin (5-7 *vs.* 9-11), by the number of scales from the lateral line to the anal-fin origin (5-6 *vs.* 9-11), by the number of scales from the lateral line to the pelvic-fin insertion (5-6 *vs.* 9-10) and the number of predorsal scales (11-13 *vs.* 16-18).

Description

Morphometric data given in Table 3; holotype 41.3 mm SL. Greatest body depth at dorsal-fin origin (mean maximum body depth about 29% SL). Area above orbits flat. Dorsal profile of head and body oblique from supraoccipital to dorsal-fin origin and from last dorsal-fin ray to caudal-fin base. Ventral profile of body convex from snout to anal-fin base and caudal peduncle. Caudal peduncle laterally compressed. Head and snout short, mandibles equal, mouth terminal, lips soft and flexible and not covering outer row of premaxillary teeth; ventral border of upper mandible curved; posterior edge of maxilla on the anterior edge of orbit; opening of posterior nostrils vertically ovoid; opening of anterior nostrils with a membranous flap. Distal tip of pectoral-fin reaching pelvic-fin insertions. Distal tip of pelvic-fin not reaching anal-fin origin.

Premaxillary with two rows of teeth. Four teeth of outer row tricuspid. Inner premaxillary row with four tricuspid teeth approximately equal in size. Maxilla short, less than three-quarters of second infraorbital length, anterior margin with two to four tricuspid teeth. Dentary with three to four large, front teeth tricuspid with central cusp largest, followed by six to seven smaller tri or tetracuspid teeth.

Lateral line complete, perforated scales 35-40 (34*, mode 37). Scale rows between dorsal-fin origin and lateral line 5-7 (6*); scale rows between lateral line and anal-fin origin 5-6 (6*, mode 5); scale rows between lateral line and pelvic-fin insertion 5-7 (6*, mode 5). Predorsal scales arranged in regular series. Dorsal-fin rays ii-iii, 7-8 (iii, 7*) with nine proximal pterygiophores; first unbranched ray less than one-half of second unbranched ray length. Dorsal-fin origin located posterior to middle of body and posterior to vertical through pelvic-fin origin. Anal-fin rays iii-v, 21-26 (24*). Anal-fin origin posterior to vertical through base of first dorsal-fin ray. Pectoral-fin rays ii-iii, 8-10 (ii, 10*). Pelvic-fin rays i,6,i. Pelvic-fin origin anterior to vertical through dorsal-fin origin. Total number of vertebra 37-39.

Secondary sexual dimorphism

Sexually mature males have 9 to 12 hooks on first two unbranched anal-fin rays and 7-10 hooks on middle and distal sections of anterior most 8 to 12 branched anal-fin rays. Males also possess 9-15 hooks on posterior most simple ray and from 8-15 large hooks on all branched pelvic-fin rays, located on both branches of rays, and extending on to anterior-most part of fin.

Color in alcohol

Sides of dorsum yellowish-brown with dark chromatophores scattered regularly and concentrated dorsally; sides of body with pigment concentrated on posterior margins of scales, sometimes forming zigzag or chevron pattern; ventrum yellow. Sides of body with brown midlateral stripe that extends from posterior part of humeral spot to caudal-fin base, and prolonged on middle caudal-fin rays. Humeral spot dark, wide, rectangular and vertically elongated, continuous to posterior margin of opercle as dark chromatophores. Caudal peduncle spot dark brown, rectangular and covering base of caudal-fin rays. All fins light yellow with some dark chromatophores.

Diet

Contents of four stomachs examined (length 10.7 ± 3.53 mm, width 5.7 ± 0.70 mm, with 5 pyloric caecae), contained aquatic larvae of Ephemeroptera and Diptera: Chironomidae.

Distribution

Bryconamericus lambayequensis sp. n. is so far known from rivers of the Pacific Coast of northern Peru (Fig. 2A).

Etymology

Bryconamericus lambayequensis sp. n. is a noun in apposition, and refers to the Lambayeque Department of Peru, where the type series was collected.

Geographic distribution of *Bryconamericus* species from the upper Amazon, River Basin and coast of Peru (Fig. 2A-B).

There are three main river systems in northern and central Peru where *B. phoenicopterus, B. osgoodi* and *B. diaphanus* occur: the Napo, Marañon and Ucayali (Ortega & Vari 1986). In the southeastern region of Peru and Bolivia the largest rivers are the Madre de Dios and the Ucayali, a major tributary of the Madeira River (Ortega & Vari 1986) where *B. abalio* sp.n. *B. bolivianus,* and *B. pachacuti* are found. *Bryconamericus* species are also present in lowland drainages, such as *B. parapetiensis* sp. n. in the Lipeo and Parapeti Rivers and other localities in Bolivia. Thus, species richness of *Bryconamericus* in this region can be considered high (Amazon Basin of Peru and Bolivia), in comparison with the Pacific Coastal streams where only one species has been found: *B. lambayequensis* sp. n.

DISCUSSION

Eight species of *Bryconamericus* are present in Peru and in Bolivia (including the three new species described here) (Tables 1-5), this is a conservative estimate of species richness and we expect the number will increase with the availability of additional specimens from yet unsurveyed rivers. The record of *B. simus* (Eigenmann 1927; Reis *et al.* 2003; Fricke *et al.* 2023) from Peru is an error (Román-Valencia et al. 2013a).

Although examination of the types of *B. bolivianus* and *B. grosvenori* and available non-type specimens (Table 4, figs. 6-7) revealed some small differences in morphometry, differences reported in their original descriptions are probably the result of different methods in taking measurements, since the general aspect of the types of these taxa are very similar (Figs. 6-7); *B. bolivianus* was described from the Rio Colorado, the lower Bopi, in Bolivia, and the other *B. grosvenori* is from the Rio Comberciato, Rio Urubamba drainage in Peru, elevation 549 m.a.s.l.

Bryconamericus alfredae Eigenmann 1927 (p. 394-395, pl. 99 fig. 1) is a junior synonym of *Acrobrycon ipanquianus* Cope 1877 (Table 6), and *B. carlosi* (Román-Valencia *et al* 2013a) is a member of the genus *Knodus* (see comments and taxonomic analyses below). Eigenmann's label in lot MCZ 30982 of *Bryconamericus alfredae* indicates that it is the type; thus, according to article 73, 73.1.1 of the International Code for Zoological Nomenclature (International Commission on Zoological Nomenclature, 1999) that specimen is the holotype fixed by original designation. When this lot, which had been loaned to Weitzman, was returned (invoice dated 23 Nov 1981) it had been re-identified as *Acrobrycon ipanquianus* (see: http://mczbase.mcz.harvard.edu/guid/MCZ:Fish:30982). Weitzman & Fink (1985) included material of *Acrobrycon ipanquianus* from the type locality of *B. alfredae*, and Géry (1977) speculated that *B. alfredae* could be an *Acrobrycon* or *Hemibrycon*. Furthermore, Eigenmann (1927) thought it possible that *Bryconamericus alfredae* could be a juvenile of *Acrobrycon ipanquianus*.

When comparing data and new material of *B. alfredae* (Table 6, Fig. 11) and *A. ipanquianus* (Arcila *et al.* 2013, Table 1, and Fig. 1) no differences are evident. Upon comparison of the data from the types of *B. alfredae* and *A. ipanquianus* (Table 6; Arcila *et al.* 2013, table 1, and see comparative material examined), some differences were noted in body depth, position of the dorsal fin relative to the anal-fin origin, and in the length and depth of the caudal peduncle. We believe that most of

these differences are in part due to the poor state of conservation of the types of *B. alfredae* (Fig. 11); Moreover, Briñoccoli et al. (2022), reconsider the validity of *A. tarijae*, which is distinguishable from *A. ipanquianus* by the number of vertebrae (37-39 vs. 41-42) and pleural ribs (12-13 vs. 14). So we consider *Bryconamericus alfredae* to be a junior synonym of *A. ipanquianus*.

Weitzman *et al*. (2005) stated: "while another inseminating species that may tentatively be considered a species of *Knodus*, *K. pectinatus* (Vari & Siebert 1990) (USNM 303441, paratypes) is without pelvic-fin hooks in adult sexually active males... we here prefer to refer to *B. pectinatus* as *Knodus pectinatus*". So, Dagosta & Netto-Ferreira (2015) suggested three possible decisions, one of which is the allocation of the new species in *Knodus* given *K. pectinatus* is hypothesized as its sister species. Upon examination of the holotype and topotypic material, we observe that their characters coincide with those of species traditionally assigned to *Knodus* by the presence of caudal-fin scales covering more than 1/3 of caudal-fin base. Thomaz *et al*. (2015) and Mirande (2018) assigned this species to *Bryconacidnus* clade based in their molecular phylogeny.

Garcia-Melo et al. (2019) suggests nomenclatural changes for some taxa such as: *Bryconamericus andresoi*, *B. arilepis*, *B. caldasi*, *B foncensis*, *B. huilae*, *B. multiradiatus* and *B. tolimae* without support and/or identification errors, furthermore, is doubtful, imprecise or absent the localities of the samples cited in its S1 table and error of identification of material from which the tissues were extracted for molecular analysis is evident; In addition, suggests synonyms (vide García-Melo et al. 2019: table 2) such as: B. *huilae* vs. *H. tolimae*, *B. caldasi* vs. *B.caucanus*; which ignores and is not supported by what was previously stated by us and even in the International Commission on Zoological Nomenclature. (ICNZ 1999: chap. 6 art 23, chap. 7 art 25, and chap. 11 art.50); for example of *B. macarenae* and *B. caldasi* that were identified (Román-Valencia et al. 2010; Román-Valencia et al. 2014; Román-Valencia, 2021) as species with restricted distribution (= endemic) and in this case (García-Melo *et al*. (2019:S1 table) did not examine type and/or topotypic material; the most logical thing is that the sequences correspond to *Knodus* species (not *B. macarenae*) and *B. caucanus* (not *B. caldasi*).

According to the above, in a non-trivial number of cases, García-Melo et al. (2019), inconsistencies in taxonomic identifications, names with respect to the recognized geographical distribution of the species. Thus, García-Melo et al. (2019) contains at least 60 misidentifications for 372 species used in their phylogenetic analyses. Due to the decoupling for the species between the known distribution and the collection locations in García-Melo et al. (2019), the conclusions about the phylogenetic relationships within the group are still ambiguous. In addition, the delimitation and morphological re-evaluation of 244 lots (that is, 244 jars with fish) that reassigned 85 specimens to other genera and species (Garcia-Melo et al. 2019), is not conclusive (Román-Valencia, 2021).

Also, Jorep & Shibatta (2017) described *Bryconamericus coeruleus* from the upper Paraná River based on two characters: 1) "presence of unaligned teeth in the outer premaxillary tooth row…, and 2) … single humeral spot, vertically elongated, expanded and rounded dorsally". The pigmentation patterns of the humeral spot (s) in material preserved in alcohol according to Roman-Valencia *et al.* (2015) and the arrangement of teeth in the outer premaxillary row are illustrated in Fig. 1. We consider the diagnostic characters used by Jorep & Shibatta (2017) to be insufficient to distinguish *B. coeruleus*. For example, the humeral spot shape is similar to that observed in other species of *Bryconamericus*,

including some of those described herein. And the same arrangement of the teeth can be seen in *B. abalio* sp.n. in this paper, *B. bucayensis*, *B. zamorensis* and *B. oroensis* (Román-Valencia *et al.* 2013a). Furthermore, B. *lambayequensis* sp.n. and *B. parapetiensis* sp.n. have unaligned teeth in the outer premaxillary row, as in *B. coeruleus* (Jorep & Shibatta 2017). So that species needs to be better diagnosed with additional characters to establish its validity.

Regarding the type series of *Chalceus brevirostris*, there are two specimens in the jar, one slightly smaller than the other (44.8-51.0 mm SL). Although Günther (1859:420) did not designate a type series in the original description of this species; he referred to the two specimens as "types" in a subsequent contribution (Günther 1864: 321) (also confirmed by James Maclaine of Natural History Museum, London, pers.com.). Although a unique holotype was not designated, careful reading of the description indicates that it was based on just one specimen. For example Günther (1859:420) gave four measurements: total length (2.7 inches), height of the body (0.75 inches), length of the head (0.6 inches), diameter of the eye (0.2 inches); in Günther (1864: 321) he states: "a-b, types of the species, 31 lines long from Mr. Fraser´s Collection." The code (ICNZ 1999) states that in this case (Articles 74.1 and 74.6) a lectotype may be designated from among the syntypes. In Eigenmann's (1910 p.432) list, he only cited *Astyanax brevirostris* as a new combination, giving Günther the credit for describing the species. We interpret this as just a case of relocation in a different genus without any explanation, given only in a list of species.

Steindachner (1879) described *Tetragonopterus branickii* from Zurumilla on the Ecuador-Peru border. However, comparison of Steindachner's description (1879) with observations made for this contribution revealed that some meristics coincide (the number of dorsal and anal-fin rays and lateral scale count) as well as other characters: dorsal fin located at midpoint of body length, pectoral fin length, as well as the pigmentation pattern of the humeral and caudal-peduncle spots. Thus revealing it to be a synonym of *B. brevirostris*. Similarly, Fowler (1911) described *Astyanax notemigonoides* from a tributary of the Rio Chimbo near Bucay in Guayas Province, Ecuador; which when we compared the original description, and data from the holotype (ANSP 39110) including the number of vertebra (37) with our observations it can also be considered a junior synonym of *B. brevirostris* (=*E. brevirostris*).

Pellegrin (1907) described *Tetragonopterus* (*Astyanax*) *riveti* from the Pove River in Santo Domingo de los Colorados in northwestern Ecuador. Eigenmann (1927) included it in the synonymy of *B. brevirostris* without explanation. However, upon revision of the original description (Pellegrin 1907) and the known distribution of *B. brevirostris* (Román-Valencia *et al.* 2011, and this work) the proposed synonymy is not considered valid, and that species should be tentatively considered as a species of *Astyanax* (*Astyanax riveti*). Those two species can be distinguished by the number of teeth: in the external premaxillary row there are 5-6 in *B. brevirostris* vs. 10 in *A.riveti*; and in the internal row there are 4 in *B. brevirostris* vs. 8 in *A. riveti*).

Böhlke (1958: 14) argued that specimens of *B. brevirostris* from the Santiago and Chimbo rivers have some differences in body shape. Which is to be expected since *B. brevirostris* in only present in rivers of the Pacific versant of Ecuador (Jiménez-Prado *et al.* 2015; Román-Valencia *et al.* 2015). This species is now considered *Eretmobrycon brevirostris* (Günther, 1860) (Mirande 2018).

Males of some species of Characidae usually have hooks on the anal and pelvic fins but less frequently

on the dorsal and caudal fins, a character that has been used as a synapomorphy for several genera of Characidae (Malabarba & Weitzman, 2003). The presence of bony hooks on all fins including the caudal fin is not common for species of *Knodus*, *Hemibrycon*, *Hyphessobrycon, Astyanax, Brycon* or *Tyttocharax;* hooks on all fins of males have only been reported as diagnostic in *B. ecuadorensis* described by Román-Valencia *et al.* (2015). We observed sexual dimorphism in only three species, *B. parapetiensis* sp.n., *B. lambayequensis* sp.n., and *B. pachacuti* have tiny spines on the anal and pelvic-fin rays.

The utility of pigmentation patterns in classification is discussed in Price *et al*. (2008), Román-Valencia *et al*. (2017) and Ruiz -C. *et al.* (2018). In our study it was found that the diversity and variability of pigmentation characters of *Bryconamericus* species are stable characters useful for their diagnosis and recognition.

Conservation status of the Amazonian Ichthyofauna and in particular *Bryconamericus*.

The Amazon Basin is of global importance because of its incredibly rich aquatic biodiversity, its impact on climate and the enormous output of fresh water. Its biota is a principal source of food and of great economic importance to millions of inhabitants (Jácome-Negrete & Guarderas Flores 2013; Ortega *et al.* 2010). The negative consequences of overfishing by local communities are now undeniable and manifestly evident in many regions of the Amazon River Basin, such as the Madre de Dios River drainage, thus reducing a major source of protein, and as yet unmeasured ecological impacts in aquatic communities (Ortega & Hidalgo 2008). Calvo (2008) listed common causal elements that typically result in loss of biodiversity and habitat quality: 1) increased human population leading to intensification of resource exploitation; 2) climate change, and 3) pollution from mining activities. While these impacts increase in spatial extension and local intensity we continue to confront vast information gaps for Neotropical fish distribution, biology (Sarmiento & Barrera 2008) and taxonomy. Gold mining activities for have completely destroyed natural waterways in some areas and dangerously increased mercury levels in many species of fish (Carnegie Institution For Science 2013). In an expedition to the Inambari River, a tributary of the Madre de Dios, sampling efforts with seines, cast nets, and hook and line captured catches far below those expected, and much lower species diversity than was expected for a river of such size (Lujan *et al.*2013; Donald C. Taphorn pers. observation). Some streams and rivers are now almost completely devoid of fishes. Many of the *Bryconamericus* species that are the subject of this study occur in areas where gold mining occurs and could be locally endangered; however, we have little knowledge of the current state of conservation for fish populations for most Amazon River tributaries. Massive habitat destruction as is currently being documented in the Madre de Dios River drainage of Peru and many other rivers of South America will in all likelihood destroy locally endemic fish species before the area is sampled by ichthyologists, adding further urgency to conduct additional fish sampling expedition and taxonomic studies such as this one.

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TABLE LEGENDS

Table 1. Morphometric and meristic data of *Bryconamericus* types *B. osgoodi*, *B. pachacuti*, *B. phoenicopterus*, Standard and total lengths in mm, mean values in parentheses.

		B. osgoodi	*B. pachacuti*	*B. pachacuti*	*B. phoenicopterus*
		Holotype	Holotype	Paratype	Holotype
		CAS 40828	MCZ 31563	CAS 40829	ANSP 8093
Morphometry				n=22	
Stándard length (mm)		54.1	68.04	30.0-62.5 (41.0)	42.05
Total length	-	-	75	35.3-55.7 (43.2)	50.64
Percentage of SL:					
1. Body depth		34	20.8	20.7-29.7 (23.8)	31.91
2. Snout-dorsal fin origin distance		52.9	50.1	47.5-55.1 (52.1)	53.25
3. Snout-pectoral fin insertion distance		25	22.8	21.7-28.5 (24.1)	25.49
4. Snout-pelvic fin insertion distance		44.8	43.9	42.3-50.5 (46.7)	45.3
5. Dorsal-fin origin-pectoral-fin distance		40.2	35.2	33.1-41.2 (36.7)	38.31
6. Snout-anal fin origin distance		64.3	58.9	59.0-65.6 (61.9)	58.41
7. Dorsal fin origin-hypurals plate length		51.46	55.3	41.7-53.5 (49.6)	53
8. Dorsal fin origin-anal fin origin length		34.31	30.7	23.5-30.4 (26.0)	31.94
9. Dorsal fin length		21.87	22.65	17.5-25.3 (22.0)	22.7
10. Pectoral fin length		21.46	16.8	14.5-27.4 (21.0)	18.9
11. Pelvic fin length		12.12	14	8.4-16.6 (14.3)	13.1
12. Anal fin length		17	15.6	8.7-19.4 (10.9)	16.12
13. Caudal peduncle depth		11.26	10.6	8.5-13.4 (10.6)	9.9
14. Caudal peduncle length		7.9	20.4	9.9-15.5 (12.6)	12
15. Head length		21.2	11.7	20.1-25.6 (22.7)	22.52
Percentages of HL:					
16. Snout length		26.33	26.23	18.5-27.3 (23.3)	23.4
17. Orbital diameter		38.45	30.9	30.6-40.0 (35.9)	42.6
18. Postorbital distance		38.5	40	34.3-44.3 (39.7)	42.6
19. Maxilla length		35.05	24.11	19.3-33.3 (25.8)	39
20. Interorbital distance	-	18.7	-	32.5-41.41 (35.8)	-
21. Upper jaw length	-	29.82	-	24.6-33.6 (28.0)	-
Meristic:					
Lateral line scales		40	41	35-41	38
Scales rows between dorsal-fin origin and lateral line		7	7	5-6	6
Scales rows between anal-fin origin and lateral line		7	6	4-5	6
Scales rows between pelvic-fin insertion and lateral line		7	6	3-5	6
Predorsal median scales		12	12	11-13	13
Dorsal-fin rays	-	iii,7	iii,7	iii,7	-
Anal-fin rays		iii,20	iii,20	iii,17-23	iii,21
Pelvic-fin rays	-	-	-	i,6i	-
Pectoral-fin rays		-	-	ii,9-11	-
Number of teeth on the maxilla	-	-	-	2-4	-

Table 2. Morphometric and meristic data in valid species of Bryconamericus from Amazonia and Paranà-Paraguay. Standard and total length in mm. Mean in parentheses. SD. Standard deviation.

SD.: Standard deviation.	SD	*B. pachacuti*	SD	*B.phoenicopterus*	SD
Morphometry		n=246		n=218	
Standard length (mm)	2.7	12.4-46.9 (28.9)	9.3	23.8-66.9 (50.7)	7.6
Total length	3.5	7.0-55.9 (35.1)	11.3	30.4-82.0 (62.8)	9
Percentage of SL:					
1. Body depth	4.1	14.5-27.9 (21.3)	2.4	17.5-30.8 (27.4)	1.6
2. Snout-dorsal fin origin distance	6.9	43.3-58.7 (50.5)	1.8	40.3-55.0 (53.3)	2.6
3. Snout-pectoral fin insertion distance	4	18.6-29.7 (23.4)	2.1	18.9-27.9 (23.8)	0.9
4. Snout-pelvic fin insertion distance	1.8	37.2-50.7 (44.2)	3	27.1-48.0 (42.9)	1.4
5. Dorsal-fin origin-pectoral-fin distance	5.9	29.0-42.6 (34.2)	2.1	23.9-43.4 (40.3)	1.2
6. Snout-anal fin origin distance	7.8	51.8-67.6 (58.1)	2.4	47.2-60.3 (58.0)	1.6
7. Dorsal fin origin-hypurals plate length	6.8	42.7 55.8 (51.4)	3.1	46.8 54.5 (50.2)	2.8
8. Dorsal fin origin-anal fin origin length	4.3	19.3 29.7 (23.7)	2.4	19.6 32.9 (29.6)	2
9. Dorsal fin length	3.7	17.7-27.9 (22.2)	2	18.0-29.0 (23.7)	1.6
10. Pectoral fin length	3.2	16.0-24.8 (19.9)	2	16.0-27.1 (21.4)	1.9
11. Pelvic fin length	2.5	11.6-16.9 (14.1)	2.4	10.9-17.0 (14.9)	1.1
12. Anal fin length	2.5	13.1-24.4 (18.1)	1.8	12.1-23.6 (17.3)	2.2
13. Caudal peduncle depth	1.4	6.5-13.4 (8.7)	1.1	7.4-12.8 (10.7)	0.8
14. Caudal peduncle length	2.6	9.3-20.9 (14.9)	2.2	6.1-12.8 (9.1)	1.1
15. Head length	3.3	20.6-30.5 (23.2)	1.6	18.7-28.3 (22.0)	0.8
Percentages of HL:					
16. Snout length	2.8	16.3-31.7 (23.1)	3	16.4-33.3 (19.9)	2.4
17. Orbital diameter	3.1	33.0-54.2 (40.7)	4.1	24.7-34.6 (30.9)	1.7
18. Postorbital distance	3.5	26.1-45.5 (39.6)	3.7	20.5-31.8 (27.9)	3.7
19. Maxilla length	5.2	9.7-38.9 (21.4)	3.7	20.0-33.7 (27.1)	3.1
20. Interorbital distance	2.7	25.2-49.0 (31.6)	3	21.8-30.5 (25.8)	2
21. Upper jaw length	1.8	19.3-39.0 (25.5)	2.6	21.2-30.6 (24.0)	1.8
Meristic					
Lateral line scales		34-40		35-42	
Scales rows between dorsal-fin origin and lateral line		4-6		5-7	
Scales rows between anal-fin origin and lateral line		3-5		5-8	
Scales rows between pelvic-fin insertion and lateral line		4-5		6-7	
Predorsal median scales		9ii,12		6ii,18	
Dorsal-fin rays		iii-iv,12-25		iii-iv,21-28	
Pelvic-fin rays		ii,6		ii,6	
Pectoral-fin rays		ii,8-11		ii,9-11	
Number of teeth on the maxilla		2-6		4-7	

Table 3. Morphometric and meristic data of Bryconamericus lambayequensis sp.n., B. parapetiensis sp.n., and B. abalio sp.n. Standard and total lengths in mm, mean values in parentheses. SD. Standard deviation.

	B. lambayequensis sp.n.		SD	*B. parapeti sp.n.*		SD	*B. abalio* sp.n.		*B. abalio* sp.n.	SD
Morphometry	Paratype	Holotype		Paratype	Holotype		MUSM 34013		MUSM 34001	
	n=32			n=49			n=19		n=18	
							Paratype	Holotype	Paratype	
Standard length	30.0-41.8 (35.9)	41.3	3.6	22.5-44.4 (32.3)	44.3	5.8	17,2-30,2 (23,9)	28,9	13,2-19,0 (16,1)	1.7
Total length	36.6-50.4 (44.3)	52.3	4.1	28.2-55.1 (40.6)	55.4	6.9	20,3-36,6 (29,5)	35,1	16,7-23,8 (19,8)	2.1
Percentages of SL:										
1.Body depth	25.6-31.9 (29.1)	31.5	1.7	23.5-30.6 (26.9)	28.8	1.5	17,3-26,3 (22,0)	25,7	16,7-26,9 (20,5)	3.1
2. Snout-dorsal fin distance	53.1-56.7 (54.8)	56.7	1.2	49.9-58.7 (53.7)	55.6	1.9	51,0-56,7 (54,0)	54,5	44,3-53,7 (51,0)	2.6
3. Snout-pectoral fin distance	22.9-27.6 (24.7)	24.8	1.2	22.5-33.3 (28.3)	26.9	2.3	22,4-28,0 (25,9)	25,3	21,4-30,8 (24,6)	2.5
4. Snout-pelvic fin distance	41.6-46.8 (44.6)	45.2	1.2	28.1-51.6 (46.1)	46.7	3.4	40,2-50,1 (45,4)	47,4	38,6-47,1 (43,2)	2.3
5.Dorsal-pectoral fin distance	36.1-43.2 (39.9)	40.9	2	33.2-38.6 (36.2)	38.5	1.3	36,2-42,3 (39,2)	38,7	33,3-39,9 (36,7)	2.2
6. Snout-anal fin distance	58.2-62.3 (60.1)	60.4	1.1	59.3-66.5 (63.3)	62.8	1.9	52,2-62,1 (57,6)	60,8	47,5-57,0 (54,0)	2.4
7. Dorsal fin-hypural distance	47.0-51.9 (49.9)	50.3	1.5	47.5-55.7 (51.6)	50.1	1.9	45,4-52,3 (48,6)	46,8	43,6-56,8 (49,3)	4.1
8. Dorsal-anal fin distance	26.7-32.9 (30.2)	32	1.8	25.0-31.5 (29.1)	30.3	1.4	19,4-27,0 (22,9)	23,9	20,9-26,7 (23,6)	1.7
9. Dorsal-fin length	22.9-27.9 (24.6)	26.7	1.2	21.8-28.1 (24.7)	24.9	1.4	15,8-23,5 (19,6)	22,2	14,2-25,8 (20,2)	3.3
10. Pectoral-fin length	19.9-24.4 (22.0)	22.5	1.3	15.6-22.4 (19.8)	21.3	1.3	14,4-19,8 (17,1)	21,5	10,7-22,3 (15,5)	3
11. Pelvic- fin length	12.5-17.7 (14.8)	15.8	1.2	12.4-19.5 (16.4)	19.1	1.5	9,2-16,7 (12,4)	11,6	9,5-14,9 (12,5)	1.4
12. Anal-fin length	14.2-21.3 (17.9)	18.2	1.6	15.6-22.4 (18.6)	15.6	1.6	11,9-18,5 (15,6)	18	13,8-22,2 (18,3)	2.1
13. Caudal peduncle depth	9.4-14.4 (11.9)	13.1	1.2	10.2-13.7 (11.9)	11.5	0.8	6,8-9,3 (8,1)	9,1	5,4-10,1 (7,8)	1.3
14. Caudal peduncle length	7.7-12.5 (9.8)	7.8	1.2	10.4-17.9 (14.3)	14.5	1.7	6,1-14,6 (10,1)	6,8	6,5-16,4 (11,6)	2.7
15. Head length	21.5-24.6 (22.8)	21.8	0.8	22.2-28.6 (24.8)	22.5	1.4	22,9-26,6 (24,4)	22,2	26,7-27,0 (26,8)	1.2
Percentages of HL:										
16. Snout length	16.6-25.7 (22.5)	22.8	2.2	19.5-29.4 (23.8)	28.5	2.3	21,7-30,1 (25,5)	28,2	25,8-28,5 (27,2)	3.6
17. Orbital diameter	34.6-42.2 (37.9)	41.7	2.1	34.3-47.0 (41.4)	40.4	2.7	42,6-54,9 (48,5)	44,8	51,7-52,7 (52,2)	4.4
18. Postorbital distance	31.0-41.1 (36.9)	37.3	2.6	25.9-44.5 (35.7)	39.4	3.3	27,7-39,1 (32,5)	34,5	32,2-40,6 (36,4)	3.8
19. Maxilla length	24.8-41.0 (32.7)	29.2	4.7	14.7-36.3 (26.9)	24.7	4.5	23,8-38,5 (30,7)	26,9	21,9-32,7 (27,3)	8.2
20. Interorbital distance	32.0-38.0 (35.3)	37.9	1.5	30.3-41.3 (35.3)	39.5	2.4	31,1-38,7 (34,1)	33,8	31,1-36,1 (33,6)	3.7
21. Upper jaw length	27.0-34.7 (30.9)	31.3	2.1	23.7-34.9 (27.6)	31.5	2.8	23,2-32,1 (27,8)	27	32,0-34,6 (33,3)	3.7
Meristic:										
Lateral-line scales	35-40	35		35-38	37		37-39	37	35-37	
Scale row between dorsal-fin origin and lateral line	5-7	6		4-6	5		5	5	5-6	
Scale rows between anal-fin origin and lateral line	5-6	6		5-6	5		4-5	5	4-5	
Scale rows between pelvic-fin and lateral line	5-6	6		4-6	5		4-5	4	5-6	
Predorsal median scales	11-13	12		11-13	12		11-13	12	11-12	
Dorsal-fin rays	ii-iii,7-8	iii,7		ii,8	ii,8		ii,8	ii,8	ii,8	
Anal-fin rays	iii-v,21-26	v,24		iii-iv, 12-15	iii,14		iii-iv,20-23	iv,20	iii,23-25	
Pelvic-fin rays	i,6,i	i,6,i		i,6,i	i,6,i		i,6,i	i,6,i	i,6,i	
Pectoral-fin rays	ii-iii,8-10	ii,10		ii,9-12	ii,10		ii,9-10	ii,10	ii,9-10	
Teeth on maxilla	2-4	2		2-4	3		1-3	2	2-3	

Table 4. Morphometric and meristic data of B. bolivianus syntypes and non-type material. Standard and total lengths in mm, mean values in parentheses

Morphometry	*B. bolivianus* Syntype, n=2 CAS 39508	*B. bolivianus* Syntype CAS 39506	*B. bolivianus* No type, n=10 MUSM 32348	*B. grosvenori* Holotype MCZ 31562
Standard length (mm)	28,2-28,9 (28,5)	33,9	25,92-40,05 (30,6)	62,61
Total length (mm)	31,3-33,3 (32,3)	41,2	31,6-47,7 (36,8)	70
Percentage of SL:				
1. Body depth	16,9-20,4 (18,6)	17,5	21,2-26,1 (24,3)	23,8
2. Snout-dorsal fin origin distance	48,8-52,1 (50,5)	51,6	46,3-52,5 (49,7)	47,4
3. Snout-pectoral fin insertion distance	21,8-23,5 (22,6)	22,8	22,5-27,4 (25,1)	23,4
4. Snout-pelvic fin insertion distance	38,0-40,2 (39,1)	43,2	41,1-46,8 (44,1)	42,9
5. Dorsal-fin origin-pectoral-fin distance	31,9-35,9(33,9)	34	30,2-34,6 (32,1)	31,51
6. Snout-anal fin origin distance	61,3-62,3 (61,8)	58,5	56,1-59,9 (58,4)	57,7
7. Dorsal fin origin-hypurals plate length	45,7-52,5 (49,1)	47,1	49,5-55,7 (53,2)	54,4
8. Dorsal fin origin-anal fin origin length	20,6-24,1 (22,3)	21,4	22,0-25,2 (24,4)	24,92
9. Dorsal fin length	21,2-21,7 (21,4)	19,3	19,2-24,0 (22,1)	18,9
10. Pectoral fin length	17,3-18,2 (17,7)	15,8	16,3-21,7 (19,2)	16,8
11. Pelvic fin length	11,9-16,0 (14,0)	14,1	12,9-15,4 (14,2)	14,5
12. Anal fin length	17,1-17,7 (17,4)	-	15,6-17,9 (17,0)	14,9
13. Caudal peduncle depth	9,2-11,4 (10,3)	9,3	9,3-11,7 (10,2)	10,6
14. Caudal peduncle length	14,2-16,0 (15,1)	17,6	16,3-23,5 (20,7)	20,4
15. Head length	23,9-25,7 (24,8)	23,1	22,4-28,7 (25,8)	17,9
Percentages of HL:				
16. Snout length	23,3-23,5 (23,4)	26,6	21,6-29,5 (25,3)	31,5
17. Orbital diameter	31,0-33,6 (32,3)	31,2	30,8-40,9 (35,3)	38,51
18. Postorbital distance	34,4-50,0 (42,2)	53,5	40,5-45,8 (42,8)	52,6
19. Maxilla length	16,1-17,3 (16,7)	16,5	20,4-26,0 (22,6)	39,7
20. Interorbital distance	26,3-28,7 (27,5)	28,8	36,6-40,6 (38,2)	-
21. Upper jaw length	16,2-23,1 (19,7)	19,6	22,7-31,9 (28,1)	-
Meristic:				
Lateral line scales	35-37	37	37-41	41
Scales rows between dorsal-fin origin and lateral line	5	4	5	6
Scales rows between anal-fin origin and lateral line	3	3	3-4	4
Scales rows between pelvic-fin insertion and lateral line	3-4	4	3-4	4
Predorsal median scales	11-12	12	12-14	12
Dorsal-fin rays	iii,7	iii,7	ii,8	iii,7
Anal-fin rays	iii-iv,12	iii,15	ii-iii,12-15	iii,15
Pelvic-fin rays	ii,6	ii,6	ii,6	-
Pectoral-fin rays	ii,10	ii,11	ii-iii,8-9	-
Number of teeth on the maxilla	3-4	3	4-5	-

Table 5. Chronological list of nominal species of Bryconamericus (B.) from Amazon and Paraná Rivers Basins

Species	Authors	Described from	Status
B. alfredae	Eigenmann 1927	Amazon River basin, Peru	*Acrobrycon ipanquianus*
B. bolivianus	Pearson 1924	Beni River basin, Bolivia	*Bryconamericus bolivianus*
B. brevirostris	Günther1859	Coastal drainages of Ecuador and Peru	*Eretmobrycon brevirostris*
B. diaphanus	Cope 1878	Amazon River basin, Peru	*Knodus diaphanus*
B. grosvenori	Eigenmann 1927	Amazon River basin, Peru	*Bryconamericus bolivianus*
B. osgoodi	Eigenmann & Allen 1942	Amazon River basin, Peru	*Bryconamericus osgoodi*
B. pachacuti	Eigenmann 1927	Upper Amazon River basin, Peru	*Bryconamericus pachacuti*
B.pectinatus	Vari & Siebert 1990	Upper Amazon River basin, Peru	*Knodus pectinatus*
B. peruanus	Mûller & troschel 1845	Restricted to Peruvian pacific costa drainages	*Eretmobrycon peruanus*
B. phoenicopterus	Cope 1872	Amazon River basin, Peru	*Bryconamericus phoenicopterus*
B. thomasi	Fowler 1940	Paraguay River basin: Argentina and Bolivia	*Piabina thomasi*

Table 6. Morphometric and meristic data of Acrobrycon ipanquianus types
Standard and total lengths in mm, mean values in parentheses.

	MCZ 31564	MCZ 30982	CAS 39500	CAS 39501
Morphometry	n=1	n=1	n=9	n=37
Stándard length (mm)	36.12	36.55	28.4-41.5 (33.9)	30.5-56.4 (43.1)
Total length	45	40.27	35.3-40.7 (38.2)	37.9-46.2 (42.6)
Percentage of SL:				
1. Body depth	28.3	31.7	19.7-25.3 (23.2)	18.0-26.7 (22.2)
2. Snout-dorsal fin origin distance	54.6	52.4	51.8-57.8 (54.7)	48.6-57.5 (53.6)
3. Snout-pectoral fin insertion distance	25.2	25.7	23.2-26.3 (25.1)	21.2-25.4 (23.2)
4. Snout-pelvic fin insertion distance	49.5	48.1	43.4-48.2 (46.3)	40.8-52.9 (45.2)
5. Dorsal-fin origin-pectoral-fin distance	36.3	37.2	34.8-44.3 (38.8)	35.1-41.9 (38.6)
6. Snout-anal fin origin distance	63.9	49.7	55.6-63.5 (60.0)	54.0-61.9 (58.3)
7. Dorsal fin origin-hypurals plate length	46.9	61.1	44.1-53.4 (48.4)	46.4-53.2 (49.7)
8. Dorsal fin origin-anal fin origin length	29.1	29.82	23.3-27.6 (25.7)	20.5-28.5 (24.3)
9. Dorsal fin length	23.2	20.7	14.3-24.8 (20.8)	16.3-21.2 (18.7)
10. Pectoral fin length	19.4	18.2	10.9-24.3 (17.4)	14.9-23.1 (18.8)
11. Pelvic fin length	13.4	14.4	9.9-20.5 (14.8)	11.4-13.7 (12.8)
12. Anal fin length	17.7	13.6	15.6-21.4 (19.1)	10.7-19.9 (16.5)
13. Caudal peduncle depth	11.8	12.9	8.8-11.3 (10.0)	8.4-11.6 (9.8)
14. Caudal peduncle length	16.7	11.1	7.2-10.6 (9.2)	6.3-12.4 (9.8)
15. Head length	23.9	22.2	22.1-25.4 (23.3)	18.7-23.1 (21.5)
Percentages of HL:				
16. Snout length	22.7	41.1	17.7-27.5 (22.6)	20.0-30.1 (24.3)
17. Orbital diameter	36.8	37.6	38.3-44.5 (40.8)	31.6-51.0 (39.8)
18. Postorbital distance	38.3	40.1	33.8-43.8 (38.0)	31.3-47.1 (37.0)
19. Maxilla length	37.7		28.8-40.0 (34.6)	26.5-41.6 (34.1)
20. Interorbital distance	-	-	-	29.3-36.7 (33.6)
21. Upper jaw length	-	-	-	21.1-31.7 (27.2)

FIGURE LEGENDS

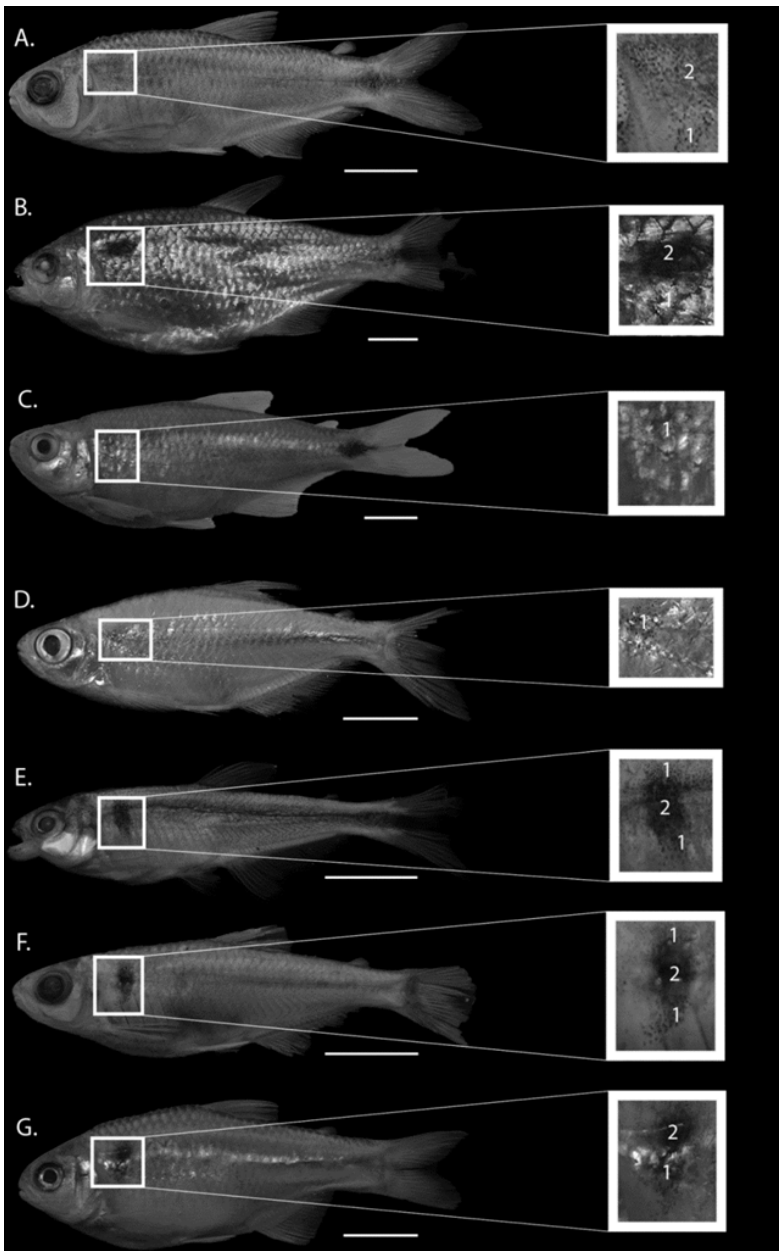

Figure 1. Shape of configuration 1 (number 1) and configuration 2 (number 2) of the pigment layers in the humeral spot of Bryconamericus (B.), Cetratobranchia and Piabina species; A, C: B. guaytarae, B: B. phoneni copterus, D: B. hypopterus, E: Ceratobranchia sp. F: B. macrophthalmus, G: Piabina thomasi. Scale bar 1 cm.

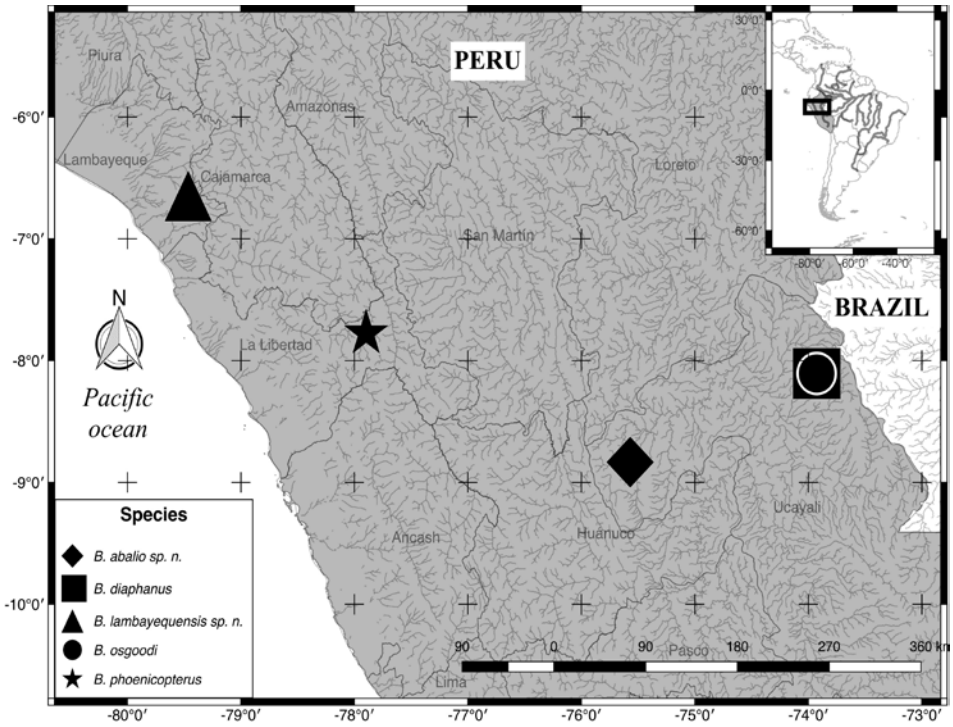

Fig. 2A

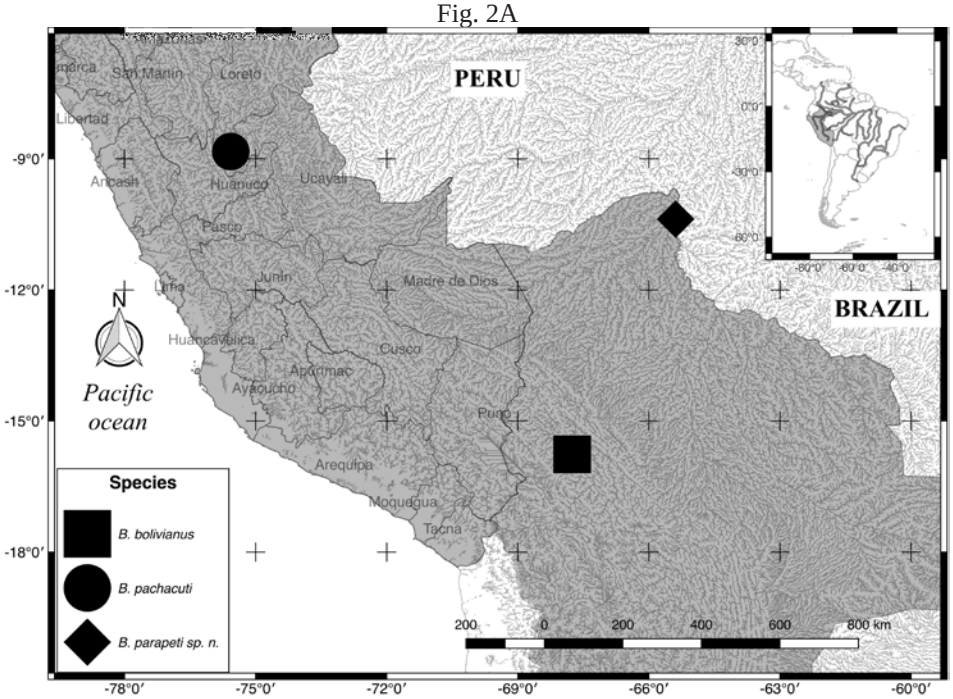

Fig. 2 B

Figures 2A-B. Geographic distribution of Bryconamericus species from the upper Amazon, Paraná-Paraguay Rivers Basin and Pacific Coast of Peru. Each symbol may correspond to more than one site; the type localities are included.

Figure 3A. Bryconamericus phoenicopterus, Holotype, ANSP 8093; 31.1 mm SL; sex unknown; PERU: Ambyacu Loreto River. Scale bar 1 cm.

Figure. 3B. Bryconamericus phoenicopterus, MUSM 10248; Amazon, Bagua, Chiriaco River, Nazareth. Scale bar 1 cm.

Figure 4. Bryconamericus abalio sp. n., holotype, MUSM 50972, 28.9 mm SL; sex unknown; PERU: Ucayali, Coronel, Portillo. Scale bar 1 cm.

Figure 5. Bryconamericus osgoodi, type, CAS 4088; sex unknown; Peru, Moyobamba, Huallaga River Basin. Scale bar 1 cm.

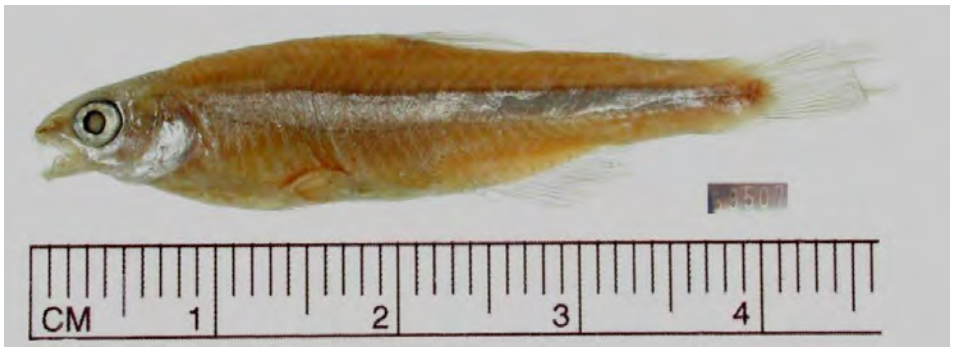

Figure 6 A. Bryconamericus bolivianus, syntype, CAS 39506; BOLIVIA: Amazon River Basin, Colorado River, tributary to lower Bopi River. Scale bar 1 cm.

Figure 6 B. Bryconamericus bolivianus, CBF 07212; BOLIVIA: Beni River, Scale bar 10 mm.

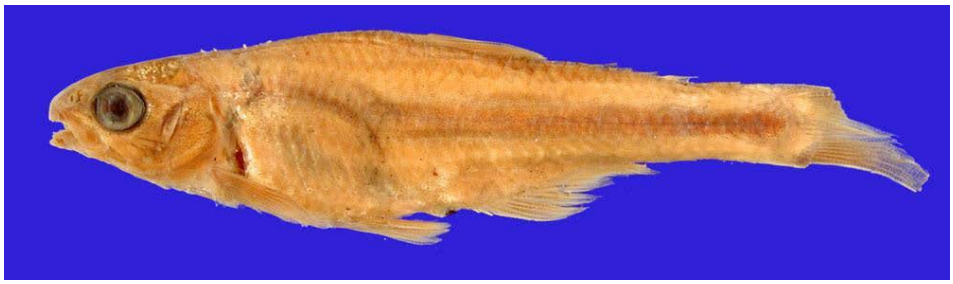

Figure 7. Bryconamericus grosvenori, Holotype MCZ 31562; PERU: Amazon basin, Comberciato River, Urubamba River drainage. Scale bar 1 cm.

Figure 8A. Bryconamericus pachacuti, type, CAS 40829; 68.0 mm SL; Sex unknown; PERU: Santa Ana, Urubamba River. Scale bar 1 cm.

Figure 8B. Bryconamericus pachacuti, MUSM 20562; 20.4 mm SL, PERU: Ucayali River drainage. Upper Urubamba. Scale bar 1 cm.

Figure 9. Bryconamericus parapetiensis sp. nov., holotype, 4.3 mm SL; ♂; UMSS 02228; BOLIVIA: Santa Cruz, Amazon, Parapeti River drainage upstream. Scale bar 1 cm.

Figure 10. Bryconamericus lambayequensis sp. nov., holotype, ♂, 41.3 mm SL; MUSM 49503; Peru, Pacific Coast, Lambayeque, Cañariaco River. Scale bar 1 cm.

Figure 11. Bryconamericus alfredae (=Acrobrycon ipanquianus), Holotype MCZ 31564; unknown sex, 36.1 mm SL. Scale bar 1 cm.