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A new striped species of *Brachychalcinus* (Ostariophysi: Characiformes) from Amapá and Pará states, northern Brazil

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A new species of *Brachychalcinus* is described from the rio Mapaoni, rio Jari basin, and the coastal rio Araguari, Amapá and Pará states, Brazil. The new species is distinguished from all congeners, except *B. reisi*, by possessing conspicuous longitudinal dark stripes across the body. It can be diagnosed from *B. reisi* by having longer predorsal and preanal spines, by having scales with few curved radii, and by having more scale rows between lateral line and midventral scale series. A single specimen from rio Tapajós (Pará, Brazil) bears all the diagnostic features of the new species and is herein tentatively identified as belonging to this taxon, extending its distribution to this river basin.

Keywords: *Brachychalcinus reisi*, Color pattern, Freshwater fishes, Stethaprioninae, Taxonomy.

Uma nova espécie de *Brachychalcinus* é descrita dos rios Mapaoni, bacia do rio Jari, e do rio costeiro Araguari, estados do Amapá e Pará, Brasil. A nova espécie se distingue de todas as congêneres, exceto *B. reisi*, por possuir conspícuas faixas escuras longitudinais ao longo do corpo. Ela pode ser distinguida de *B. reisi* por ter espinhos pré-dorsal e pré-anal mais longos, por ter escamas com poucos *radii* curvos, e por ter um número maior de séries de escamas entre a linha lateral e a série de escamas médio-ventral. Um único exemplar do rio Tapajós (Pará, Brasil) apresenta todas as características diagnósticas da nova espécie e é aqui tentativamente identificada como este táxon, ampliando sua distribuição para esta bacia.

Palavras-chave: *Brachychalcinus reisi*, Padrão de coloração, Peixes de água doce, Stethaprioninae, Taxonomia.

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INTRODUCTION

The "clade *Stethaprion*", as referred to by Garcia-Ayala, Benine (2020), is formed by the genera *Stethaprion* Cope, 1870, *Poptella* Eigenmann, 1907, *Brachychalcinus* Boulenger, 1892, and *Orthospinus* Reis, 1989. This clade is supported and diagnosed from the other characins by the presence of an articulated predorsal element (predorsal spine) (Eigenmann, 1907; Reis, 1989; Mirande, 2019).

Seven valid species are currently included in *Brachychalcinus*: *B. copei* (Steindachner, 1882), *B. orbicularis* (Valenciennes, 1850), *B. retrospina* Boulenger, 1892, *B. nummus* Böhlke, 1958, *B. parnaibae* Reis, 1989, *B. reisi* Garcia-Ayala, Ohara, Pastana & Benine, 2017, and *B. signatus* Garcia-Ayala & Benine, 2020. The genus was originally proposed by Boulenger (1892) and is characterized by a predorsal spine with a sharp posterodorsally directed process running along the anterior surface of the first dorsal-fin ray as well as a long anteriorly directed process, which gives the spine an overall triangular shape. Interestingly, *Brachychalcinus* presents a similar modification in the anal fin, with a triangular preanal spine (Reis, 1989).

Brachychalcinus is widely distributed across Cis-Andean South America, inhabiting the upper portions of several river drainages at the Amazon in Bolivia, Brazil, Peru, Ecuador, and Colombia, the rio Orinoco basin in Colombia and Venezuela, the rio Paraguay basins in Brazil and Paraguay, and also river systems from Guyana and Suriname (Reis, 1989). Examination of material deposited at the Instituto de Pesquisas Científicas e Tecnológicas do Estado do Amapá, Macapá (IEPA) and Laboratório de Biologia e Genética de Peixes - IB/UNESP, Botucatu (LBP) revealed the existence of an undescribed striped species of *Brachychalcinus* from the rio Jari and rio Araguari, Amapá and Pará states, Brazil, which is formally described herein.

MATERIAL AND METHODS

Counts and measurements follow Sidlauskas *et al*. (2011). Head width and predorsal spine length follow Garcia-Ayala, Benine (2019). The preanal spine length is measured as the greatest length along its longitudinal axis. Measurements were taken point to point with a digital caliper (precision of 0.1 mm) on the left side of the specimens. Measurements are presented as proportions of standard length, except for subunits of the head, which are given as proportions of head length. Values between parentheses indicate the number of specimens with a particular count, and the asterisk indicates the values of the holotype. For osteological observations, one specimen was cleared and stained (c&s) according to Taylor, Van Dyke (1985); an additional specimen was radiographed using the X-ray system Faxitron LX60 DC12 at LIRP (FFCLRP-USP). Vertebral counts were taken from a single c&s specimen and include the four vertebrae of the Weberian apparatus, and the terminal centrum was counted as a single element. Institutional acronyms are described in Sabaj (2020). Non-type specimens correspond to two poorly preserved specimens that provide complementary information on the distributional records of the new species.

RESULTS

Brachychalcinus sabaji, new species

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(Figs. 1–3, 4H, 5A; Tab. 1)

Brachychalcinus aff. *reisi* (non Garcia-Ayala, Ohara, Pastana & Benine, 2017). —Garcia-Ayala *et al*., 2017:571 (rio Tapajós basin; comparative material). —Garcia-Ayala, Benine, 2020:955 (rio Tapajós basin; comparative material).

Holotype. IEPA 6879, 69.7 mm SL, Brazil, Amapá, Laranjal do Jari, rio Mapaoni, rio Jari basin, Parque Nacional Montanhas do Tumucumaque (PNMT), 02°11'36"N 54°35'15"W, 12–13 Jan 2005, C. S. Gama & T. M. Paulino.

Paratypes. All from Brazil. ANSP 208909, 1, 52.6, mm SL; IEPA 4784, 2, 52.1–69.7 mm SL; IEPA 4980, 4, 55.9–70.7 mm SL; IEPA 4984, 1, 64.6 mm SL; LBP 34043, 2, 52.6–53.5 mm SL; MZUSP 128973, 2, 55.9–67.4 mm SL; ZUEC 17347, 2, 60.8–70.7 mm SL, same data as holotype. IEPA 3231, 2, 41.0–50.6 mm SL, Pará, Laranjal do Jari, rio Traíra, rio Jari basin, 00°37'25"S 52°32'49"W, 1 Dec 2011, G. A. Pereira, P. G. Azevedo & F. J. S. Costa.

Non-types: All from Brazil. IEPA 5520, 1 (SL uncertain, caudal peduncle missing), Amapá, Serra do Navio, rio Amapari, tributary of rio Araguari, PNMT (in front of the park headquarters), 01°11'11"N 52°22'22"W, 13–17 Sep 2021, C. S. Gama, M. H. Sabaj & F. C. T. Lima. LBP 23315, 1 x-ray, 62.6 mm SL, Pará, Itaituba, igarapé Cipó, rio Tapajós basin, 04°52'14"S 56°51'19"W, 29 Sep 2011, R. Britzke.

FIGURE 1 | *Brachychalcinus sabaji*, holotype, IEPA 6879, 69.7 mm SL, Brazil, Amapá, rio Jari basin.

Diagnosis. *Brachychalcinus sabaji* can be distinguished from all congeners, except *B. reisi*, by possessing conspicuous longitudinal dark stripes across the body depth (*vs*. longitudinal dark stripes absent or restricted to middorsal portion of the body). It can be additionally distinguished from *B. copei*, *B. parnaibae*, *B. retrospina*, and *B. signatus* by having a lower number of branched dorsal-fin rays (9 *vs*. 10–11). The new species is distinguished from *B. orbicularis* by having a comparatively shorter predorsal spine (5.2–6.0 *vs*. 6.0–9.4% mm SL), a shorter preanal spine (5.0–5.7 *vs*. 6.0–7.5% mm SL) (Figs. 5A, B), and by a faint second humeral mark (*vs*. conspicuous second humeral mark). *Brachychalcinus sabaji* is differentiated from *B. reisi* by having a longer predorsal spine (5.2–6.0 *vs*. 3.2–5.1% mm SL) and longer preanal spine (5.0–5.7 *vs*. 3.4–4.7% mm SL) (Figs. 5A, C), by having scales with few curved radii (*vs*. scales with numerous straight radii), and by having more scale rows between lateral line and midventral scale series (9–10 *vs*. 7–8). Additionally, *B. sabaji* can be distinguished from *B. nummus* by the lower number of longitudinal scale rows between the lateral line and dorsal-fin origin (7–8 *vs*. 9–11).

Description. Morphometric data summarized in Tab. 1. Largest specimen examined 70.7 mm SL. Greatest body depth at dorsal-fin origin. Dorsal profile of head convex from tip of snout to vertical through anterior nostril; concave from that point to tip of supraoccipital spine; convex from that point to dorsal-fin origin; dorsal-fin base posteroventrally inclined; straight or slightly convex from dorsal-fin terminus to half distance to adipose fin; and convex from this point to adipose fin basis; and straight to slightly concave along dorsal caudal-peduncle profile. Ventral profile of head and body convex from tip of dentary to anal-fin insertion; straight and posterodorsally slanted along anal-fin base; slightly concave at caudal peduncle. Prepelvic region compressed into a sharp keel, with a series of folded and imbricated scales forming a somewhat serrated margin.

Mouth terminal. Maxilla reaches vertical through anterior margin of pupil; its posterior end not extending beyond third infraorbital. Premaxillary teeth in two rows. Outer row with 4*(13) tricuspid teeth. Inner row with 5*(11) pentacupid teeth. Maxilla with 1(6) or 2(5) tri- to tetracuspid teeth. Dentary with 4*(11) pentacuspid teeth, usually central cusp longer, followed by a series of 8 smaller, tri- to unicuspid teeth (1 c&s) (Fig. 2).

Dorsal-fin rays iii,9*(13). First dorsal-fin element modified into a long, roughly triangular spine in lateral view, with a sharp backward process lying on proximal portion of first unmodified dorsal-fin ray. First unbranched dorsal-fin ray shorter than second. Dorsal-fin origin anterior to vertical through middle of standard length. Adipose fin present. Pectoral-fin rays i,10(9) or i,11*(4). Tip of adpressed pectoral fin extends beyond midlength of adpressed pelvic-fin rays. Pelvic-fin rays i,6*(13). Tip of adpressed pelvic fin reaching first unbranched anal-fin ray. Anal-fin rays iv, 27(1), 28(2), 29(3), 30*(6), or 31(1). First anal-fin element modified into a hook-like preanal spine, with an elongate forward-directed pointed process; second anal-fin element modified into a stiffened simple blunt spine (Fig. 5A). Caudal fin i,17,i*(1) rays. Dorsal procurrent caudal-fin rays 10(1); ventral procurrent caudal-fin rays 8(1). Caudal-fin forked, lobes somewhat rounded and similar in size.

TABLE 1 | Morphometric data of *Brachychalcinus sabaji*. N = 13 specimens, including the holotype. SD = Standard deviation.

	Holotype	Range	Mean	SD
Standard length (mm)	69.7	52.7 –70.7	61.5	–
Percentage of standard length				
Snout to dorsal-fin origin	56.1	55.4–58.8	52.7	1.0
Snout to adipose-fin origin	90.0	85.9–93.2	90.2	1.7
Snout to anal-fin origin	69.4	69.2–76.1	72.1	2.6
Snout to pelvic-fin origin	55.4	55.5–61.3	58.3	2.5
Snout to pectoral-fin origin	32.8	32.6–33.9	33.3	0.5
Dorsal-fin origin to pectoral-fin origin	58.7	57.3–62.4	59.1	1.6
Dorsal-fin origin to pelvic-fin origin	68.6	65.8–76.0	70.6	3.5
Dorsal-fin origin to anal-fin origin	72.1	68.1–79.9	74.2	3.6
Dorsal-fin origin to anal-fin end	59.7	54.6–61.9	58.8	1.9
Dorsal-fin origin to hypural joint	62.5	55.4–63.1	59.9	1.8
Dorsal-fin origin to adipose-fin origin	45.3	41.9–46.7	44.6	1.4
Length of dorsal-fin base	19.5	17.9–20.9	19.6	0.9
Dorsal-fin end to pelvic-fin origin	63.2	61.6–69.5	64.7	2.4
Dorsal-fin end to adipose-fin origin	25.7	23.1–26.1	25.1	1.0
Dorsal-fin end to anal-fin origin	61.7	59.6–68.7	63.6	3.2
Dorsal-fin end to anal-fin end	39.8	36.1–42.0	39.4	1.7
Adipose-fin origin to anal-fin origin	64.3	62.4–68.3	64.4	2.0
Adipose-fin origin to anal-fin end	19.7	18.2–20.8	19.5	0.9
Adipose-fin origin to hypural joint	16.9	14.5–17.8	16.3	1.1
Distance from eye to dorsal-fin origin	43.7	43.1–46.3	44.9	1.5
Length of anal-fin base	49.1	46.1–51.1	48.5	1.1
Predorsal spine	5.4	5.2–6.0	5.6	0.2
Preanal spine	5.3	5.0–5.7	5.4	0.2
Anal-fin origin to hypural joint	13	8.3–13	10.3	1.3
Pectoral-fin length	27.3	26.4–30.7	27.9	1.3
Pelvic-fin length	15.9	15.4–17.3	16.2	0.7
Dorsal-fin length	31.7	31.0–36.4	33.2	1.8
Anal-fin length	20.6	19.7–25.5	22.3	1.6
Pelvic-fin origin to anal-fin origin	16.3	14.8–18.7	17	1.2
Pelvic-fin origin to adipose-fin origin	70.8	61.7–73.7	69.6	2.1
Pelvic-fin origin to hypural joint	72.5	59.0–72.9	68.1	2.1
Pelvic-fin origin to pectoral-fin insertion	23.7	23.5–27.3	25	1.8
Greatest body depth	69	65.7–76.3	70.5	3.1
Greatest body width	15	13.6–15.4	14.6	0.6
Caudal-peduncle depth	12.9	10.8–12.6	12	0.6
Head depth	58.6	55.1–63.8	58.8	2.4
Snout to supraoccipital crest	34.8	32.0–35.6	34.3	1.2
Head length	29.4	28.8–31.6	30.0	1.0
Percentage of head length				
Preopercle length	90.1	90.1–94.3	92.6	1.1
Snout to anterior margin of eye	27.7	24.4–29.7	26.7	2.1
Snout depth	16.3	14.2–19.9	16.9	2.1
Upper jaw length	47	43.5–47.0	45.1	1.4
Eye diameter	40.7	40.4–43.1	41.5	1.2
Interorbital width	38.8	36.9–39.4	38	1.3

Scales cycloid, with two to six parallel radii. Lateral line series with 34(6) or 35*(7) perforated scales. Lateral line slightly curved downward. Predorsal scales in an irregular series. Scale rows between dorsal-fin origin and lateral line 7(2) or 8*(11). Scales rows between lateral line and midventral scale series 9*(8) or 10*(5). Circumpeduncular scales 14*(10) or 15(3). Small scales at base of anal fin; two series covering at least anterior most seven rays, which gradually become a single series that extends to over half of anal fin. Small scales covering proximal two-thirds of caudal-fin lobes.

First gill arch with 12(1) rakers on lower limb and 10(1) rakers on upper limb. Total vertebrae 30(1). Supraneurals 3(1).

Coloration in alcohol. Overall background coloration of head and body pale beige. Dorsal portion of head and body dark. Dark chromatophores concentrated on snout, jaws, dorsal portion of the neurocranium, and along dorsal midline of body. Ventral portion of head and body with scattered dark chromatophores. Infraorbital series with dark chromatophores scattered on the surface of infraorbital bones, pigmentation more concentrated on infraorbitals 5 and 6. Infraorbitals, opercular series, and gular area silvery in specimens retaining guanine. Two humeral blotches separated by a light area. First humeral blotch conspicuous, with concentrated dark chromatophores lying deeply under scales, rounded, extending across four to five scales from horizontal series and two scales from the transverse row. Second humeral blotch faint, formed by scattered dark chromatophores lying deeply under scales, extending about three scale rows horizontally and four scale rows vertically. Narrow longitudinal dark line running along horizontal septum of body, extending from humeral region to caudal peduncle. Sixteen to seventeen, dark, wavy longitudinal stripes formed by dark pigmentation concentrated on upper and lower scale margins, extending along

FIGURE 2 | Premaxilla, maxilla, and dentary of *Brachychalcinus sabaji*, LBP 34043, 52.6 mm SL, paratype, lateral view, right side. Scale bar = 1 mm.

trunk. Stripes visible along the entire body, more discernible dorsally, except at area of contact between predorsal series of scales and first lateral scale row. Dark wavy stripes more conspicuous dorsally. Pectoral fin with dark chromatophores scattered along edge of lepidotrichia of unbranched and first branched rays. Pelvic fin with dark chromatophores located along fin rays, pigmentation concentrated at posterior half of unbranched and first branched rays. Proximal portion of dorsal fin with concentration of dark chromatophores along interradial membranes; distal portion of fin with dark chromatophores on rays and interradial membranes. Proximal portion of anal fin with concentration of dark chromatophores along interradial membranes; distal margin of fin with dark chromatophores on rays and interradial membranes. Adipose fin with scattered dark chromatophores, more concentrated at fin base. Caudal fin with scattered dark pigmentation on margins of rays (Fig. 1).

Sexual dimorphism. Mature males with small bony hooks on the branched rays of the anal fin. Anal-fin hooks unevenly distributed on the distalmost segments of the 1st unbranched ray to the 14th branched rays, being more numerous in the anteriormost seven branched rays. One to three hooks per segment.

Geographical distribution. *Brachychalcinus sabaji* is known from the rio Jari, a northern-bank tributary of the lower Amazon River, and the adjacent rio Araguari, an independent coastal river system emptying at the Amazon River delta, Amapá and Pará states, Brazil, respectively. A single specimen from the rio Tapajós is herein identified as *B. sabaji*, extending the distribution of the new species to this river basin (Fig. 3).

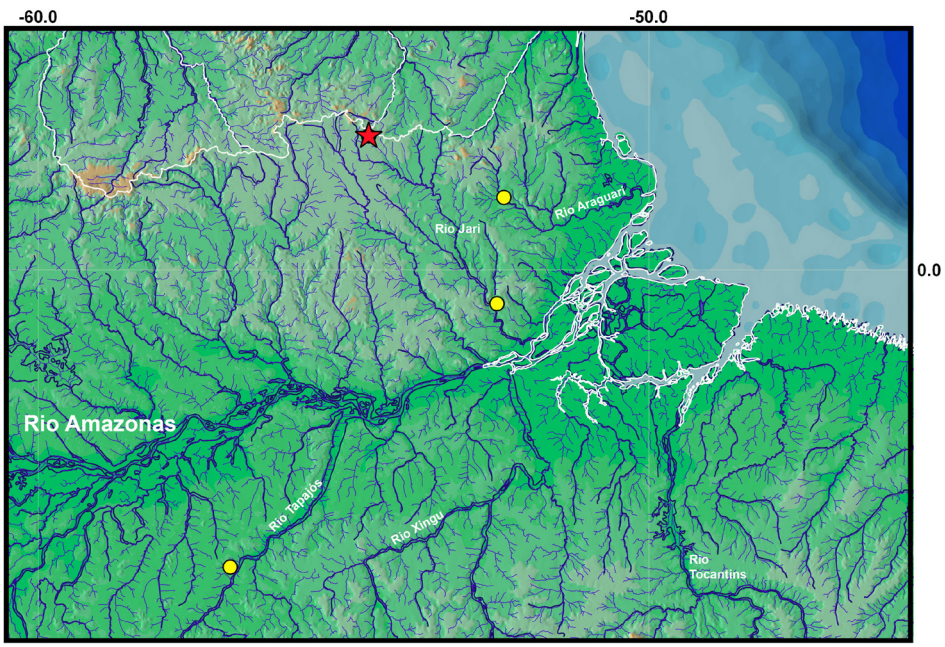

FIGURE 3 | Map showing the known distribution of *Brachychalcinus sabaji*. Red star indicates the type-locality. Symbols may represent more than one lot.

Etymology. The specific name "*sabaji*" is after Mark Henry Sabaj, fish curator of the Academy of Natural Sciences of Philadelphia of Drexel University, in recognition of his outstanding contribution to the knowledge of South American freshwater fishes. A noun in a genitive case.

Conservation status. Considering that no imminent threats to the species were detected in the area of occurrence, we suggest that *Brachychalcinus sabaji* has no apparent threat of extinction. According to the International Union for Conservation of Nature (IUCN) categories and criteria (IUCN Standards and Petitions Subcommittee, 2023), we propose classifying *B. sabaji* as category Least Concern (LC).

DISCUSSION

Since the revision of the group (Reis, 1989), five additional species of the *Stethaprion* clade were described indicating that the diversity of the group was underestimated (Garcia-Ayala *et al*., 2017; Garcia-Ayala, Benine, 2019, 2020, 2021). These publications confirmed that the variation of the unbranched rays in the dorsal fin (iii,9; iii,10, and iii,11) and the shape and length of the predorsal spine are reliable characteristics allowing the diagnosis not only of the genera but of the species belonging to this clade.

The recent descriptions of new species of the genus *Brachychalcinus*, including the present one, point out that color pattern is also helpful for the discrimination of *Brachychalcinus* species. Therefore, *Brachychalcinus* species can be categorized into three groups according to the color pattern: 1) the "*Brachychalcinus copei* pattern", characterized by the first humeral blotch slightly darker, especially at its middle portion, - present in *B. copei*, *B. nummus*, *B. parnaibae*, and *B. retrospina* (Figs. 4A–D); 2) the "*Brachychalcinus signatus* pattern", which is characterized by a conspicuously darker second humeral blotch, present in *B. orbicularis* and *B. signatus* (Figs. 4E–F); and 3) the "*Brachychalcinus reisi* pattern", which is characterized by the presence of longitudinal dark stripes across the body, present in *B. reisi* and *B. sabaji* (Figs. 4G–H).

Garcia-Ayala *et al*. (2017) hypothesized that a single striped specimen from the rio Tapajós (LBP 23315) could represent a putative distinct species, even though they conservatively identified it as *B.* aff. *reisi*. However, based on the data gathered in the present contribution, we reidentified this specimen as *B. sabaji*, since it bears all the diagnostic features of the new species. Although additional specimens from the rio Tapajós basin are needed for a definitive decision on whether this population is truly conspecific with *B. sabaji* or else belongs to an additional undescribed species, the shape of the preanal spine, other than its size, is strong evidence in favor of our decision. The new species has a comparatively sharper preanal spine, more similar to a hook than a triangle (Fig. 5). This very same morphology is observed in the specimen from rio Tapajós (Fig. 6), but until this feature is properly quantified, we cautiously did not include it in the diagnosis of *B. sabaji*.

The known distribution of *B. sabaji* better fits the shield pattern originally proposed by Lima, Ribeiro (2011), called the "Amazonian Uplands pattern" (for species restricted to shield-draining portions of the Amazon basin) by Dagosta, de Pinna (2017, 2019), which comprises species restricted to the rivers of the Amazon basin draining both

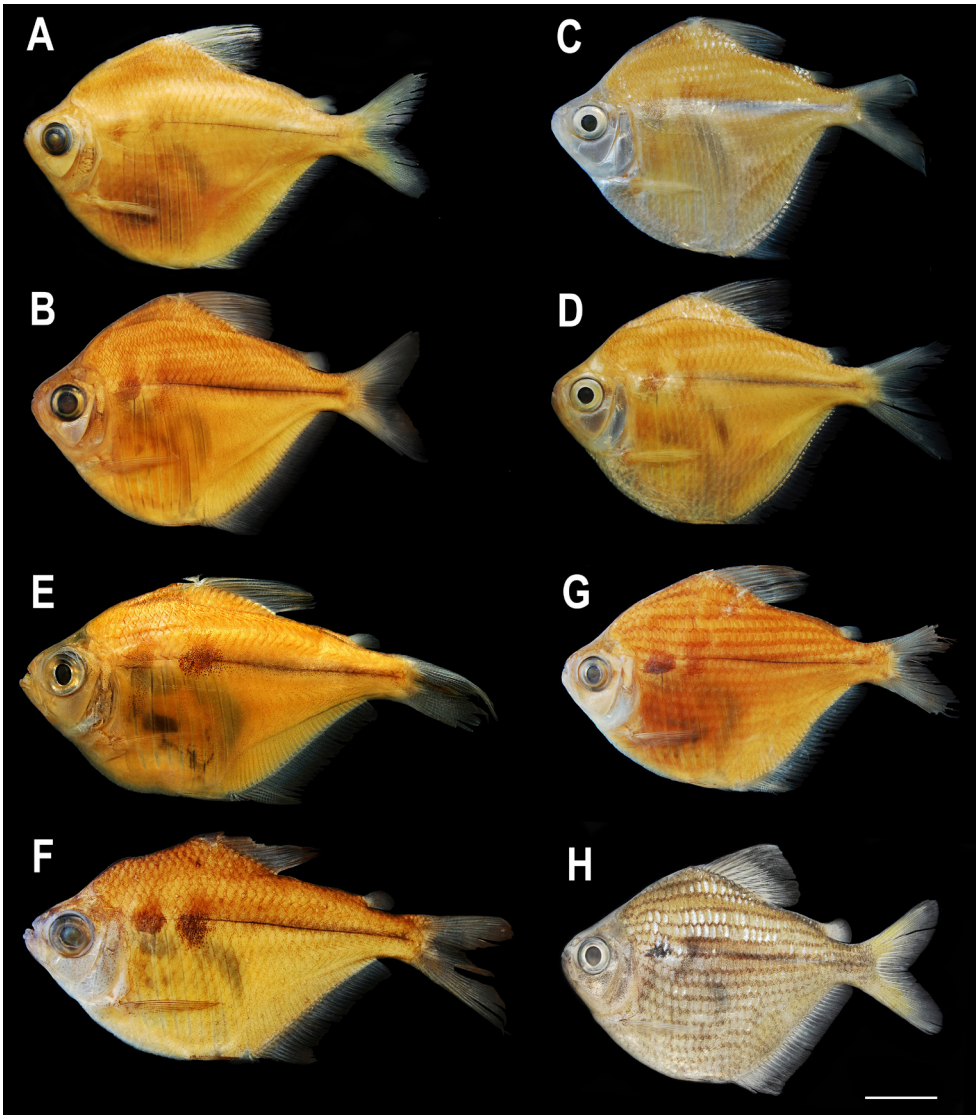

FIGURE 4 | *Brachychalcinus* species groups according to color pattern: **1.** "*B. copei* pattern": **A.** *B. copei*, LBP 23616, 81.3 mm SL; **B.** *B. restrospina*, NUP 21577, 58.7 mm SL; **C.** *B. nummus*, LBP 28578, 48.0 mm SL; **D.** *B. parnaibae*, MZUSP 87486, 54.1 mm SL. **2.** "*B. signatus* pattern": **E.** *B. orbicularis*, ROM 102235, 52.1 mm SL; **F.** *B. signatus*, paratype, INPA 5667, 48.4 mm SL. **3.** "*B. reisi* pattern": **G.** *B. reisi*, LBP 24499, 54.6 mm SL; **H.** *B. sabaji*, paratype, IEPA 4980, 62.8 mm SL, lateral view, left side. Scale bar = 1 mm.

FIGURE 5 | Preanal spine of *Brachychalcinus*: **A.** *B. sabaji*, LBP 34043, paratype, 52.6 mm SL; **B.** MCP 11033, *B. orbicularis*, 48.2 mm SL; **C.** *B. reisi*, paratype, MZUSP 119482, 52.2 mm SL, lateral view, left side. Scale bars = 1 mm.

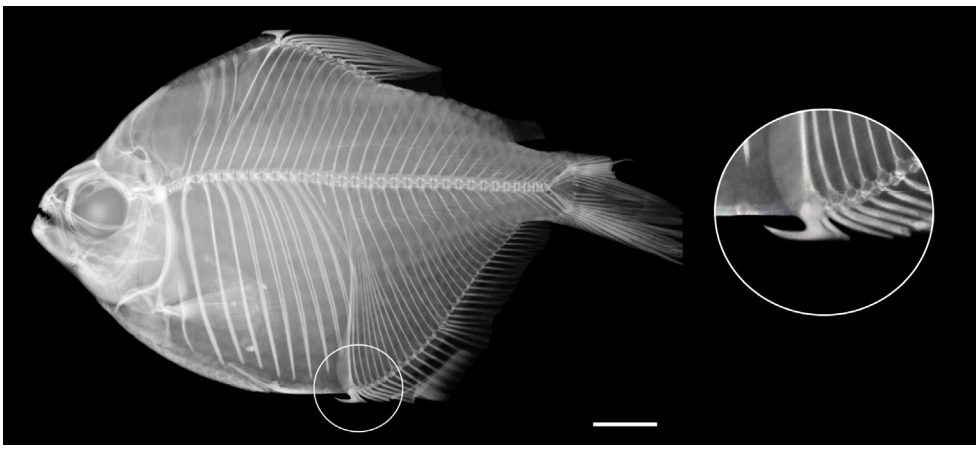

FIGURE 6 | Radiograph of the *Brachychalcinus sabaji*, LBP 2331523456, 62.6 mm SL, rio Tapajós, Itaituba, Pará, Brazil, lateral view, left side. Scale bar = 1 mm.

Brazilian and Guiana shields. It is noteworthy that examination of an image of the voucher MNHN 2002-3521 (misidentified as *Poptella orbicularis*) from the rio Jari basin in French Guiana at the border with Brazil indicates that it is most likely a specimen of *B. sabaji*, which suggests that the species extend its distribution to that country.

Comparative material examined. *Brachychalcinus copei*: **Brazil**: LBP 15070, 31, 20.6–62.7 mm SL; MZUSP 42342, 1, 34.7 mm SL; UFRO 14632, 3, 48.2–58.7 mm SL; ZUEC 14923, 1, 50.9 mm SL. **Peru:** ANSP 143538, 5, 58.6–69.6 mm SL; LBP 23616, 6, 63.6–84.1 mm SL. *Brachychalcinus nummus*: **Brazil:** LBP 4094, 12, 31.2–50.2 mm SL; MZUSP 50283, 6, 21.9–41.3 mm SL; ZUEC 13307, 10, 32.8–67.2 mm SL. **Ecuador:** ANSP 136041, 10, 46.0–61.6 mm SL; ANSP 137651, 3, 58.4–67.6 mm SL. **Peru:** LBP 2582, 2, 42.4–44.3 mm SL; LBP 28578, 4, 39.2–56.7 mm SL; LBP 17753, 1, 25.9 mm SL; MUSM 28646, 4, 36.2–62.9 mm SL; MUSM 37968, 6, 79.0–82.8 mm SL; MUSM 33599, 5, 42.1–52.2 mm SL. *Brachychalcinus orbicularis*: **Suriname:** ANSP 137057, 3, 31.1–55.0 mm SL; MCP 11033, 1 c&s, 48.2 mm SL; ROM 102235, 51.8 mm SL. *Brachychalcinus parnaibae*: **Brazil:** MZUSP 87486, 3, 53.9–63.3 mm SL; NUP 16326, 1, 46.7 mm SL. *Brachychalcinus reisi*: **Brazil:** LBP 24499, 10, 25.9–54.8 mm SL; LBP 24500, 8, 17.2–51.2 mm SL; MZUSP 119476, 8, 24.5–51.1 mm SL; MZUSP 119482, 19, 18.2–56.9 mm SL; paratypes. *Brachychalcinus retrospina*: **Brazil:** LBP 8509, 5, 32.2–43.6 mm SL; LBP 30560, 1, 30 mm SL; MZUSP 44431, 9, 32.1–42.3 mm SL; NUP 879, 5, 39.7–58.5 mm SL; NUP 21631, 10, 35.9–45.7 mm SL; NUP 21577, 10, 38.2–60.2 mm SL. *Brachychalcinus signatus*: **Brazil:** INPA 5667, 3, 42.7–48.8 mm SL; INPA 5610, 5, 49.5–54.3 mm SL; paratypes. *Brachychalcinus* sp.: **Brazil:** DZSJRP 145148, 2, 39.1–41.2 mm SL; DZSJRP 14912, 1, 22.9 mm SL; DZSJRP 15049, 6, 35.8–61.1 mm SL; DZSJRP 16850, 6, 42.9–54.5 mm SL; DZSJRP 15088, 5, 36.3–48.8 mm SL; DZSJRP 17356, 13, 36.7–63.4 mm SL; INPA 39582, 4, 37.2–42 mm SL; INPA 45091, 7, 22.2–36.4 mm SL; INPA 45932, 7, 31.4–39.1 mm SL; INPA 46050, 17, 32.5–45.7 mm SL; LBP 17657, 24.9–29.5 mm SL; LIRP 10735, 1, 49.2 mm SL; LIRP 12170, 5, 39.1–40.6 mm SL; LIRP 12090, 3, 43.5–49.8 mm SL; LIRP 13439, 2, 36.4–50.0 mm SL; MCP 37953, 3, 31.9–60.8 mm SL; MCP 38856, 1, 29.2 mm SL; MPEG 667, 6, 53.3–75.4 mm SL; MPEG 14956, 1, 30.6 mm SL; MPEG 14982, 2, 32.6–33.3 mm SL; MZUSP 96024, 1, 47.0 mm SL; MZUSP 96026, 10, 41.4–55.9 mm SL; MZUSP 97255, 3, 27.1–30.3 mm SL; MZUSP 99905, 4, 25.1–28.2 mm SL; MZUSP 119515, 1, 36 mm SL; MZUSP 105294, 25, 32.5–47.7 mm SL; UFRO 9363, 1, 39.5 mm SL; UFRO 11758, 10, 49.8–64.1 mm SL; UNT 2631, 1, 49.3 mm SL; UNT 9039, 23, 39.9–50.0 mm SL; UNT 12022, 1, 28.7 mm SL; UNT 14655, 1, 22.3 mm SL; UNT 20437, 12, 34.8–49.2 mm SL. **Colombia:** LBP

18644, 2, 32.5–35.1 mm SL; LBP 18735, 5, 43.7–53.7 mm SL. *Orthospinus franciscensis* (Eigenmann, 1914): **Brazil:** LBP 8105, 15, 42.5–53.9 mm SL. *Poptella compressa* (Günther, 1864): **Guyana:** ROM 87123, 10, 48.6–63.7 mm SL. *Stethaprion crenatum* Eigenmann, 1916: **Brazil:** LBP 31261, 2, 67.8–68.1 mm SL.

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