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New species of *Phenacorhamdia* (Siluriformes: Heptapteridae) from the Xingu River basin

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Heptapteridae is a diverse group of catfishes composed of 231 valid species endemic to the Neotropical region, recognized in two subfamilies: Rhamdiinae and Heptapterinae. *Phenacorhamdia* is a Heptapterinae member and currently has 13 valid species broadly distributed throughout the main river basins of South America. Here we described a new species of *Phenacorhamdia* from the Xingu River basin. Morphological data were obtained from 30 specimens under 23 morphometric measures and 6 meristic counts. The new species differs from congeners based on the exclusive combination of the following diagnostic characters: atypical mottled colored body and all fins with interradial membranes mottled pigmented; multicuspid teeth; maxillary barbel reaching pectoral-fin origin; lacking a short extension of the first pectoral-fin ray; caudal fin lobes extremely elongated and pointed; and 43–45 total vertebrae.

Keywords: Amazon River basin, Brazilian Shield, Catfishes, Taxonomy.

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Heptapteridae é um grupo diverso de bagres neotropicais composto por 231 espécies válidas, endêmicas da região Neotropical, divididas em duas subfamílias: Rhamdiinae e Heptapterinae. *Phenacorhamdia* é um membro de Heptapterinae e atualmente possui 13 espécies válidas amplamente distribuídas pelos principais rios da América do Sul. Aqui nós descrevemos uma nova espécie de *Phenacorhamdia* da bacia do rio Xingu. Dados morfológicos foram obtidos de 30 espécimes, 23 medidas morfométricas e seis contagens merísticas. A nova espécie é diferenciada de suas congêneres com base na seguinte combinação de características: um atípico corpo manchado com as membranas interradiais de todas as nadadeiras manchadas; dentes multicuspidados; barbilhão maxilar atingindo a origem da nadadeira peitoral; ausência de uma curta extensão do primeiro raio da nadadeira peitoral; lóbulos da nadadeira caudal extremamente alongados e pontiagudos, e 43–45 vértebras.

Palavras-chave: Bacia do rio Amazonas, Bagres, Escudo Brasileiro, Taxonomia.

INTRODUCTION

Phenacorhamdia Dahl, 1961 is a genus of Heptapteridae a Neotropical catfish family widely distributed from southern Mexico to Pampas of Argentina (Bockmann & Guazzelli, 2003). According to Britski (1993) and Bockmann (1998:367), species of the genus are distinguished by having small eyes covered by integument, prognathous mouth, second pore of the nasal canal located far posterior to the anterior nostril, the epioccipital process prominent, and neural and hemal spines of posterior vertebrae inclined 30° or less. *Phenacorhamdia* was considered a junior synonym of *Heptapterus* Bleeker, 1858 by Mees (1974). Still, posteriorly, Britski (1993), in the description of *Phenacorhamdia unifasciata* recognized the genus as valid and proposed some morphological features as potentially diagnostic for the genus. The genus was recovered as a member of an unnamed monophyletic group composed of *Chasmocranus* Eigenmann, 1912, *Pariolius* Cope, 1872, and two undescribed genera in a phylogenetic analysis by Bockmann (1998). Recently, in comprehensive Heptapteridae phylogeny based on UCEs, Silva *et al*. (2021) found two major subclades, classified as the subfamilies Rhamdiinae and Heptapterinae. *Phenacorhamdia* was recognized as a member of Heptapterinae and belonged to the large tribe Heptapterini, in the Clade 3, together with *Pariolius* and *Cetopsorhamdia* Eigenmann & Fisher, 1916.

Currently, *Phenacorhamdia* includes 13 valid species (Fricke *et al*., 2021) widespread in the South America river basins: *P. anisura* (Mees, 1987), *P. macarenensis* Dahl, 1961, *P. provenzanoi* DoNascimiento & Milani, 2008, and *P. taphorni* DoNascimiento & Milani, 2008 occur throughout the Orinoco River basin in Venezuela and Colombia; *P. tenuis* (Mees, 1986) in the Guiana Shield; in the upper Amazon, *P. boliviana* (Pearson, 1924) occurs in the Madeira River basin in Bolivia and Brazil; *P. nigrolineata* Zarske, 1998 in streams from Ecuador, Peru, and Colombia; in the Brazilian Shield, *P. cabocla* Rocha, Ramos & Ramos, 2018 in the Parnaíba River basin, *P. somnians* (Mees, 1974) in Araguaia River basin, *P. hoehnei* (Miranda Ribeiro, 1914) in Paraguay; and *P. roxoi* Silva, 2020, *P.*

tenebrosa (Schubart, 1964), and *P. unifasciata* Britski, 1993 in the upper Paraná River basin. In addition, Silva *et al.* (2021) recognized four undescribed species of *Phenacorhamdia* occurring in the Amazon basin in the Brazilian Shield, from the Tocantins, Xingu, and Tapajós river basins. Below we described one of these species from the Xingu River basin.

MATERIAL AND METHODS

Measurements and counts were taken from the left side of specimens and made point to point to the nearest 0.1 mm with digital calipers. Measurements and abbreviations follow DoNascimiento, Milani (2008). Morphometrics is given as percentages of standard length (SL), except for subunits of the head, which are expressed as percentages of head length (HL). Specimens were cleared and stained (c&s) according to Taylor, Van Dyke (1985). The number of branchiostegals, gill rackers, vertebrae, ribs, and supporting elements of dorsal and anal fins positions were determined in cleared and stained specimens and radiographs. Vertebral counts include the first five vertebrae in the Weberian apparatus and the compound caudal centrum was counted as one. The osteology nomenclature follows Bockmann, Castro (2010). Nomenclature for supraorbital and infraorbital sensory pores and lateral-lines canal and branches following Bockmann, Castro (2010). Data on pectoral, anal, and caudal-fin rays, pleural ribs, and total vertebrae for *Phenacorhamdia anisura*, *P. provenzanoi*, *P. tenuis*, and *P. taphorni* were taken from DoNascimiento, Milani (2008). *Phenacorhamdia cabocla*, *P. macarenensis*, and *P. nigrolineata* data were obtained from their original descriptions (Dahl, 1961; Zarske, 1998; Rocha *et al*., 2018) and for *P. boliviana* from images of the syntype, available at CAS Ichthyology Primary Types Imagebase website (http://research.calacademy.org/research/ichthyology/types/Index.asp). Additional data were obtained from the BMNH (*P. somnians*) and MNRJ (*P. hoehnei*) images collections. Counts are given in parentheses, and an asterisk indicates the holotype. Institutional abbreviations follow Sabaj (2020). Zoological nomenclature follows the International Code of Zoological Nomenclature (International Commission on Zoological Nomenclature, 1999).

RESULTS

Phenacorhamdia suia, new species

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(Figs. 1–3; Tab. 1)

Phenacorhamdia n. sp. 2. Xingu. —Silva *et al*., 2021: fig. 1 [phylogenetic relationships of Heptapteridae].

Holotype. MNRJ 24850, 81.8 mm SL, Brazil, Mato Grosso State, São Félix do Araguaia, Xingu River basin, Comandante Fontoura River basin, Santa Luzia stream,

11°19'30"S 52°17'06"W, 16 Jan 2002, P. Buckup, A. Aranda, F. Silva & C. Figueiredo.

Paratypes. All from Brazil, Xingu River basin. **Mato Grosso State:** LBP 15885, 1, 32.9 mm SL, Canarana, Tanguro River, Culuene River, 13°25'30.9"S 52°16'47.0"W, 1 Aug 2012, C. Oliveira, M. I. Taylor, G. J. Costa-Silva & J. H. M Martinez. LBP 15886, 6, 57.1–79.9 mm SL (2 c&s, 44.9–51.3 mm SL), Canarana, Tanguro River, Culuene River, 13°25'30.9"S 52°16'47.0"W, 1 Aug 2012, C. Oliveira, M. I. Taylor, G. J. Costa-Silva & J. H. M Martinez. LBP 15910, 1, 32.6 mm SL, Canarana, Coronél Vanick River, 13°31'34.1"S 52°43'52.5"W, 2 Aug 2012, C. Oliveira, M. I. Taylor, G. J. Costa-Silva & J. H. M Martinez. LBP 16013, 1, 37.1 mm SL, unnamed stream affluent of Culuene River, 13°27'26.9"S 53°09'36.6"W, 3 Aug 2012, Oliveira, M. I. Taylor & G. J. Costa-Silva. LBP 16014, 1, 47.8 mm SL, Gaúcha do Norte, Culuene River, 13°27'26.9"S 53°09'36.6"W, 3 Aug 2012, Oliveira, M. I. Taylor & G. J. Costa-Silva. LBP 16017, 1, 47.6 mm SL, Gaúcha do Norte, affluent of Culuene River, 13°26'32.8"S 53°08'45.1"W, 3 Aug 2012, Oliveira, M. I. Taylor & G. J. Costa-Silva. MZUSP 86862, 15, 23.2–44.9 mm SL, Ribeirão Cascalheira, Suiazinho River, 12°57'10.0"S 51°51'08.0"W, 16 Out 2004, O. T. Oyakawa, J. L. Birindelli & C. Oliveira. MZUSP 86875.0, 2, 24.5–26.4 mm SL, Canarana, Capim stream, 13°30'46.0"S 52°23'36"W, 17 Out 2004, C. Moreira, M. I. Landim, J. C. Nolasco & A. Datovo. MZUSP 86846, 1, 30.0 mm SL, Ribeirão Cascalheira, Turvo River, 13°13'28.0"S 51°55'50.0"W, 16 Out 2004, Axe team. **Pará State:** LBP 16703, 2, 31.4–35.7 mm SL, Vitória do Xingu, Fonte Boa stream, 02°58'12.3"S 52°05'11"W, C. Oliveira, R. Britzke & L. M. Souza.

Diagnosis. *Phenacorhamdia suia* differs from all congeners by having an atypical mottled colored body (Figs. 1–2) (*vs*. uniformly counter-shaded, without mottled pattern; with a longitudinal dark brown stripe along the dorsal half of the body in *P.*

FIGURE 1 | *Phenacorhamdia suia*, MNRJ 24850, holotype, 81.8 mm SL, Brazil, Mato Grosso State, São Félix do Araguaia, upper Xingu River basin. Photographed by Dario Faustino-Fuster.

FIGURE 2 | *Phenacorhamdia suia*, paratypes, LBP 15886: **A.** 79.9 mm SL; **B.** 65.7 mm SL; **C.** 56.0 mm SL. Photographed by Lais Reia.

unifasciata), and by having all fins with interradial membranes pigmented and mottled (*vs*. fins with interradial membranes hyaline). Additionally, *P. suia* differs from all congeners, except *P. taphorni* by having multicuspid teeth (*vs*. conical teeth) (Fig. 3). The new species differs from some of its congeners by maxillary barbel reaching pectoral-fin origin (*vs*. maxillary barbel reaching the end of adpressed pectoral fin in *P. anisura*, *P. boliviana*, *P. nigrolineata*, and *P. tenebrosa*; reaching half the length of pectoral fin in *P. tenuis*; surpassing pectoral fin in *P. provenzanoi* and *P. taphorni*; reaching pelvic-fin origin in *P. macarenensis*); lacking a short extension of the first pectoral-fin ray (*vs*. present in *P. anisura*, *P. macarenensis*, *P. nigrolineata*, *P. provenzanoi*, and *P. taphorni*), by caudal fin deeply forked with extremely elogated and pointed lobes (*vs*. moderately pointed in *P. hoehnei*; rounded in *P. somnians*); and by having 43–45 total vertebrae (*vs*. 39 in *P. taphorni*; 41 in *P. hoehnei*; 41–42 in *P. tenebrosa*; 46–47 *P. unifasciata*; 47–48 in *P. provenzanoi*; 53–55 in *P. tenuis*).

Description. Morphometric data are summarized in Tab. 1. Small-sized Heptapteridae (largest specimen 81.8 mm SL). In dorsal view, body elongated progressively more compressed from dorsal-fin base to caudal peduncle. Greatest body width at cleithral region, progressively narrowing anteriorly towards snout tip and posteriorly towards caudal fin. In lateral view, body depressed and convex profile from the end of head to dorsal-fin origin; slightly convex from dorsal-fin origin to adipose-fin origin; straight from adipose-fin origin to caudal peduncle. In lateral view, ventral profile convex and descending from snout tip to opercular region; slightly convex from opercular region to pelvic-fin origin; straight from that point to anal-fin origin; slightly concave from that point to lower procurrent caudal-fin ray origin. Head depressed, dorsally covered by skin with small papillae. Snout short and rounded in dorsal view. Dorsal profile of head convex (in large specimens) or straight (in small specimens) from snout tip to the occipital region. Subcutaneous eyes, dorsally positioned, just anterior of the midpoint

of head. Mouth gape slightly superior (prognathous). Premaxillary and dentary teeth arranged in a rectangular patch of several irregular rows. Distal portion of teeth flattened and multicuspid. Maxillary barbel reaching the base of first pectoral-fin ray, when adpressed. Outer mental barbel longer than inner barbel. Inner and outer mental barbels aligned. Outer mental barbels reaching posterior margin of branchiostegal membrane. Anterior and posterior nares tubular. Gill membranes free, supported by seven (2) branchiostegals and joined to isthmus only at anterior point. Five (2) gill rakers along the anterior border of the first ceratobranchial.

Laterosensory canal of the head with simple tubes ending in single pores. Supraorbital sensory canal usually with five branches and pores: s1, s2, s3, and s8. Supraorbital pore 1 medially adjacent to anterior nares. Supraorbital s2 and infraorbital i2 fused (forming complex s2+i2) at midway between anterior and posterior nares, s3 inside posterior nares, at the notch of the cutaneous membrane. s4, s5, and s6 pores absent. The s8 at the posterior surface of the frontal. Infraorbital laterosensory canal with six branches pores: i1, i2, i3, i4, i5, and i6, with i2 fused to s2. Infraorbital pore i1 adjacent to anterior nares, between nares and maxillary barbel; i2+s2 neared to anterior nares. Pore i3 laterally positioned at midway between anterior and posterior nares; i4 at vertical through anterior orbit; i5 posterior to eye. Pore i6 located posterior to pore i5, vertical through pm9. Preoperculo mandibular canal with 12 lateral-line branches and pores: pm1 in the

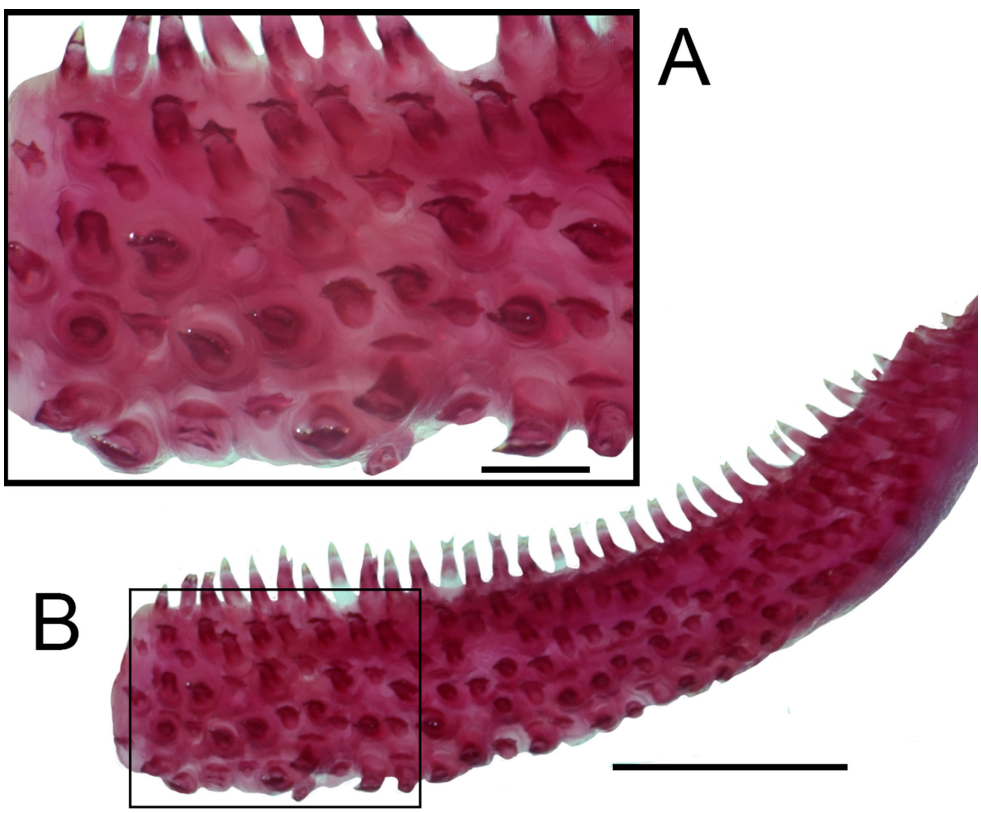

FIGURE 3 | Left dentary of *Phenacorhamdia suia*, paratype, LBP 15886, 51.3 mm SL (c&s). **A.** Dorsal view of medial portion of dentary teeth (scale bar = 0.1 mm) and **B.** Dorsal view of entirely dentary teeth (scale bar = 0.5 mm).

TABLE 1 | Morphometric data for *Phenacorhamdia suia*. SD = standard deviation; N = number of specimens.

	Holotype	Range	Mean	SD	N
Standard length (mm)	81.8	47.6–81.8	63.0	–	9
Percentages of standard length					
Body depth	7.4	7.4–11.8	10.1	1.3	9
Predorsal length	37.4	37.4–43.7	39.4	2.4	9
Dorsal fin base	9.1	8.8–11.3	9.7	0.8	9
Dorsal fin to adipose fin	25.5	25.5–34.9	31.9	2.7	9
Preadipose length	71.8	68.0–73.3	70.6	1.6	9
Adipose-fin length	19.2	15.3–19.2	17.8	1.0	9
Prepelvic length	33.6	33.6–39.2	36.0	1.9	9
Preanal length	66.3	62.6–68.0	65.4	1.5	9
Anal fin base	13.5	11.4–15.1	13.4	1.1	9
Caudal peduncle length	19.9	17.9–23.6	20.6	1.4	9
Caudal peduncle depth	6.5	6.5–8.5	7.1	0.6	9
Upper caudal lobe length	37.5	25.8–37.5	29.8	3.5	9
Lower caudal lobe length	41.5	29.6–41.5	33.9	3.6	9
Head length	18.5	16.5–20.7	18.4	1.3	9
Percentages of head length					
Head width	69.0	67.6–79.3	70.7	3.7	9
Head depth	40.0	40.9–50.2	45.9	3.2	9
Snout length	39.6	36.0–41.8	38.8	2.0	9
Fleshy interorbital	19.4	19.0–25.0	21.5	1.8	9
Eye diameter	6.2	6.2–10.0	8.2	1.1	9
Maxillary-barbel length	16.5	16.5–21.7	18.6	1.4	9
Outer mental-barbel length	12.5	11.8–14.2	12.7	0.7	9
Inner mental-barbel length	9.8	8.7–14.7	10.4	0.9	9

medial portion of dentary; pm2, pm3, and pm4 aligned anteriorly to inner and outer mental barbel; pm5 dorsal to outer mental barbel base; pm6 just posterior to pm5; pm7 and pm8 at vertical through anterior and posterior orbit respectively. Four pores in the preopercle region: pm9, pm10, pm11+po1, and po2 (Fig. 4).

Precaudal vertebrae 15*(3), caudal vertebrae 27*(1) or 30(2), totaling 43*(1) or 45(2) vertebrae. First hemal spine on vertebra 16*(1) or 17(2). Hemal spine of vertebrae 26*(1) or 27(2) to 31(2) or 32*(1) bifid (Fig. 5). Eight(2) or nine*(1) ribs (Fig. 6).

Pectoral fin with one unbranched and seven branched rays (30). Pelvic-fin origin at vertical through dorsal-fin origin and with i,5(30) rays. First pelvic-fin ray shortest, second and third branched rays longest. Dorsal fin with i,6(30) rays. Dorsal fin unbranched ray slightly convex. First basal radial inserted in the 13º vertebra, and last basal radial anterior to the neural spine of vertebra 18. Adipose fin long (15.3–22.5% SL). Anal fin with v,8*(7) or v,9(23) rays. Anal fin supported by 10 basal and 8 distal radials. Caudal skeleton composed of a plate formed by parhypural + hypurals 1 and 2 in the lower lobe, upper lobe plate formed by hypurals 3 and 4 fused, hypural 5 free, and a pleurostyle. Caudal fin forked with i,7*(3)+7,i*(1) or 8,i(2) principal rays. Caudal-fin lobes long, the ventral longer (27.6–35.6% SL) than dorsal lobe (25.8–32.1% SL). Twelve (2) to thirteen (2) procurrent rays in dorsal and ventral lobes.

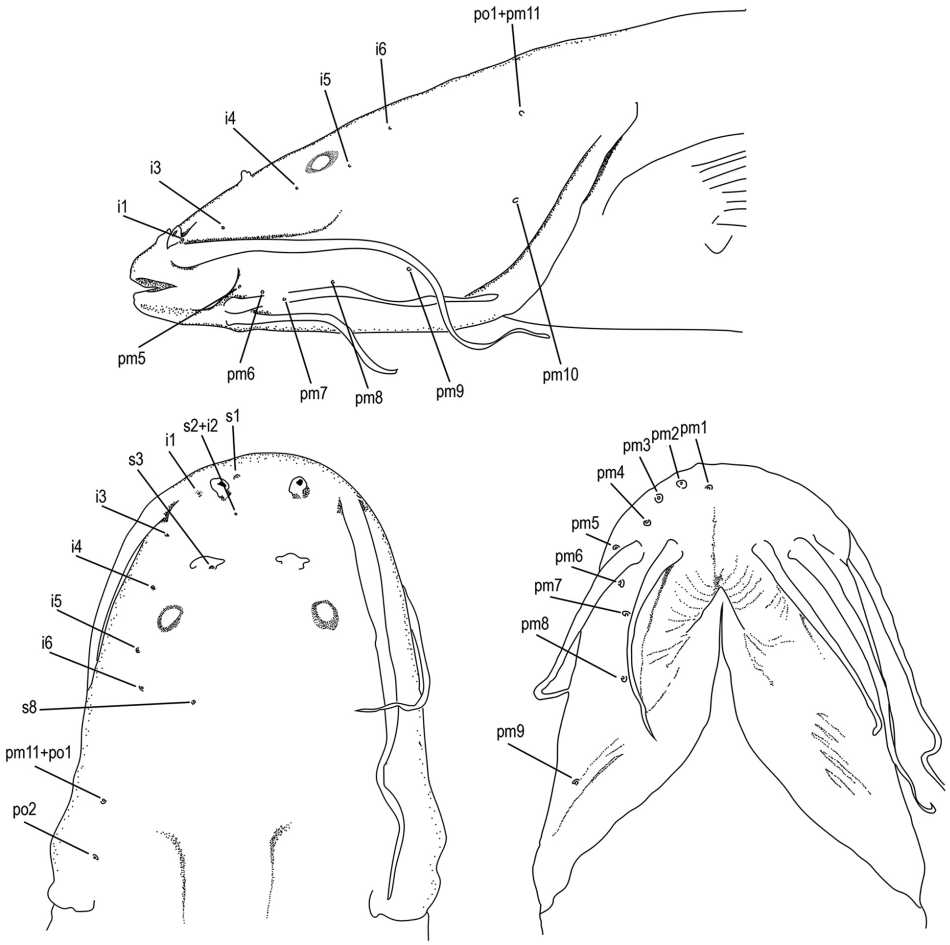

FIGURE 4 | Lateral, dorsal and ventral view of head of *Phenacorhamdia suia*, LBP 15886, 79.9 mm SL, paratype, showing the cephalic laterosensory pores. Infraorbital pores (i1–i6); Preoperculomandibular pores (pm1–pm11); Postotic pores (po1–po2); Supraorbital pores (s1–s3, and s8).

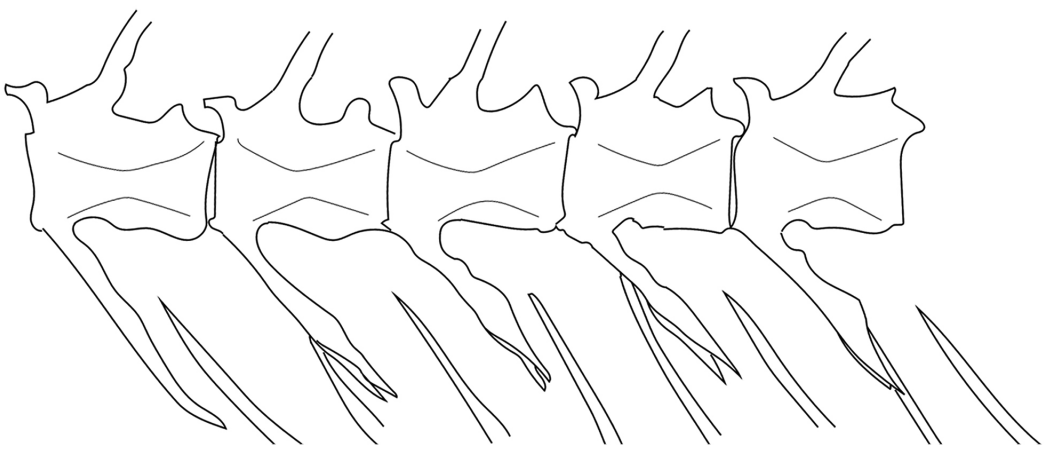

FIGURE 5 | Lateral view of bifid hemal spines of vertebrae 27 to 31, located dorsally to anal-fin pterygiophores. *Phenacorhamdia suia*, paratype, LBP 15886 (1 c&s), 51.3 mm SL.

FIGURE 6 | Radiograph images of the holotype of *Phenacorhamdia suia*, MNRJ 24850, 81.8 mm SL. Lateral (top) and ventral (bottom) views.

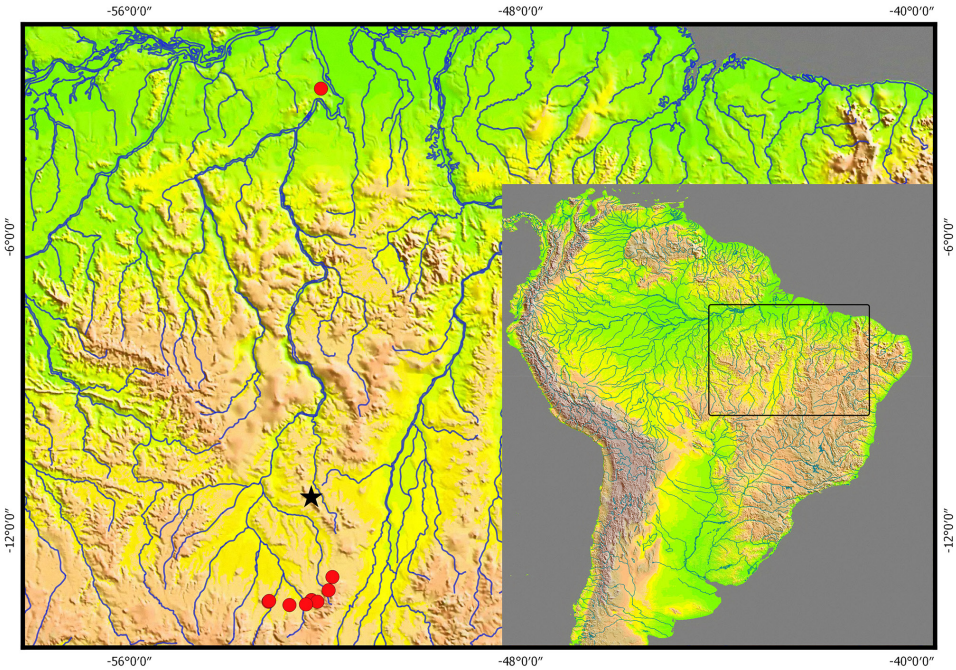

FIGURE 7 | Geographic distribution of *Phenacorhamdia suia* in Brazilian Shield. Black star = holotype. Red circles = paratypes localities.

Color in alcohol. Overall pigmentation mottled (with light brown background and irregular dark brown blotches formed by minutes and concentrated melanophores that overlap each other) (Figs. 1–2), becoming ventrally mostly unpigmented. Interradial membranes of all fins pigmented as the body.

Geographical distribution. *Phenacorhamdia suia* is known from nine localities from the upper and lower Xingu River basins (Fig. 7). The type-locality is Santa Luzia stream, Comandante Fontoura River basin. Other sites are Culuene, Coronel Vanick, Suiazinho, Turvo Rivers, Capim and Fonte Boa streams, and two unnamed streams.

Etymology. The specific name "*suia*" refers to the Suias indigenous people who, since the 90's, have stood out in the fight to protect the Suiá-Missu River environment and for recovery of their traditional lands outside the limits of Xingu park. A noun in apposition.

Conservation status. *Phenacorhamdia suia* is a widely distributed species in the Xingu basin, known from nine localities; moreover, the areas where the specimens were collected are relatively well preserved. Because there is no imminent threat to the species, *P. suia* is recommended to be categorized as Least Concern (LC), according to the International Union for Conservation Nature (IUCN) categories and criteria (IUCN Standards and Petitions Subcommittee, 2019).

DISCUSSION

The new species is unequivocally placed within *Phenacorhamdia* since it has five of the six synapomorphies for the genus proposed by Bockmann (1998:368): (1) posterior process of epioccipital prominent; (2) prognathous mouth; (3) neural and hemal spines of the posterior vertebrae inclined 30° or less; (4) eight branched rays in the lower lobe of the caudal fin; and (5) second pore of the supraorbital nasal canal located too far posteriorly from the anterior nostril. *Phenacorhamdia suia* lacks one synapomorphy: the first pectoral-fin ray is slightly longer than the second. *Phenacorhamdia suia* exhibits the first pectoral-fin ray shorter than the second ray. Additionally, the genus placement of *P. suia* is supported by the phylogenomic hypothesis of Heptapteridae based on the UCEs dataset proposed by Silva *et al*. (2021). In that study, *P. suia* (there named as *Phenacorhamdia* n. sp. 2. Xingu) was more related to typical species of *Phenacorhamdia*: *P. roxoi*, *P. somnians*, and three new species from Tapajós and Tocantins rivers of the Amazon basin.

Although *Phenacorhamdia* is recognized as a monophyletic group, different hypotheses of relationship at the intergeneric level have been proposed. Bockmann (1998) proposed *Phenacorhamdia* as the sister group to *Pariolius armillatus* Cope, 1872 and a new genus, consisting of two species: *Imparfinis microps* Eigenmann & Fisher, 1916 and an undescribed form. In the last hypothesis, *Chasmocranus* Eigenmann, 1912 was in a basal position as the sister group of *Phenacorhamdia* (*Pariolius* (*Imparfinis microps*, undescribed species)). Subsequently, DoNascimiento, Milani (2008) found morphological evidence of phylogenetic affinities of *Phenacorhamdia* with *Chasmocranus*, based on both genera share distinctive bifid hemal spines of the vertebrae immediately dorsal to the insertion of the anal-fin pterygiophores. In contrast with the last hypothesis, Silva *et al*. (2021) placed *Phenacorhamdia* as sister to *Pariolius*, suggesting the homoplasic evolution of single to bifid spines in Heptapteridae.

Phenacorhamdia suia has a peculiar tooth morphology with maxillary and dentary teeth with several tiny cusps (Fig. 3). This character was first reported by DoNascimiento, Milani (2008) in *P. taphorni* and two undescribed species from the Paraná and Mamoré River basin, indicating a putative close relationship between the species mentioned above and *P. suia*. Although this character seems to be essential evidence to a putative natural group inside *Phenacorhamdia*, a phylogenetic study with a dense number of species is

required to evaluate if the multicuspid teeth (primary homology) can be confirmed as a synapomorphic condition or if this character evolved several times independently.

The new species described here was collected in several localities of the upper Xingu River basin in Mato Grosso State (LBP 15910, 15885, 15886, 16014, 16017, 16013; MNRJ 24850; MZUSP 86862, 86875, 86846) and a single stream in the lower Xingu River basin, in Pará State (LBP 16703), far from the upper portion of the Xingu River (Fig. 4). Silva *et al*. (2021) analyzed both the samples from the upper (LBP 16017) and lower (LBP 16703) Xingu River in their phylogeny and confirmed that these specimens form a monophyletic group. Furthermore, the specimens from the lower portion have the same diagnostic characters found in the specimens from the upper portion.

Comparative material examined. *Phenacorhamdia boliviana*: **Bolivia.** CAS 63632, syntype, photo and x-ray, 47.0 mm SL. **Brazil.** LBP 12008, 1, 41.0 mm SL. *Phenacorhamdia cabocla*: **Brazil.** LBP 5550, 1, 40.0 mm SL. UFPB 10041, 1 c&s, 59.2 mm SL. *Phenacorhamdia hoehnei*: **Brazil.** MNRJ 787, lectotype, photo and x-ray, 29.7 mm SL. NUP 21562, 5, 37.3–70.2 mm SL, 1 c&s, 73.4 mm SL. ZUFMS 1969, 46.5–66.0 mm SL. *Phenacorhamdia nigrolineata*: **Peru.** MTD F 20728, holotype, photo and x-ray, 37.6 mm SL. MTD F 17472, paratype, photo and x-ray, 33.2 mm SL. *Phenacorhamdia roxoi*: **Brazil.** MZUSP 125819, holotype, 63.2 mm SL. LBP 1994, paratypes, 11, 24.1–83.7 mm SL, 3 c&s, 42.9–83.7 mm SL. *Phenacorhamdia somnians*: **Brazil.** BMNH 1971.7.29.4, holotype, photo and x-ray, 55.0 mm SL. LBP 2468, 45.8 mm SL. LBP 2474, 4, 35.8–47.6 mm SL. LBP 5717, 3, 55.0–46.2 mm SL. *Phenacorhamdia tenebrosa*: **Brazil.** LBP 29845, topotype, 20, 46.3–27.5 mm SL, 2 c&s, 37.6–38.6 mm SL. *Phenacorhamdia unifasciata*: **Brazil.** DZSJRP 14228, 4, 44.8–53.1 mm SL, 1 c&s, 54.0 mm SL.

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AUTHORS' CONTRIBUTION

Gabriel S. C. Silva: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing-original draft.

Luz E. Ochoa: Data curation, Methodology, Writing-review and editing.

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Not applicable.

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The authors declare no competing interests.

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