

A new species of the *Eigenmannia trilineata* (Gymnotiformes: Sternopygidae) species group from the río Orinoco basin, Venezuela

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A new species of the *Eigenmannia trilineata* species group is described from the río Orinoco basin, Venezuela. The new species is distinguished from congeners by a unique set of characters including an ossified basibranchial 1; 198-217 anal-fin rays; suborbital depth, 21.3-26.1% HL; length of anterodorsal process of maxilla equal to the width of the posterior nostril; premaxilla with 17 teeth distributed in three rows; hyaline pectoral and anal fins; and number of scale series above lateral line, 9-10. It raises the number of species allocated to the *Eigenmannia trilineata* species group to 13 and the number of species within the genus to 18.

Keywords: Biodiversity, Electric-fishes, Taxonomy, Tuvira.

Se describe una nueva especie del grupo *Eigenmannia trilineata* de la cuenca del río Orinoco, Venezuela. La nueva especie se distingue de sus congéneres por una combinación única de caracteres, incluyendo el basibranchial 1 osificado; número de radios de la anal, 198-217; profundidad del suborbital, 21.3-26.1% HL; longitud del proceso anterodorsal de la maxila igual al ancho de la narina posterior; 17 dientes premaxilares distribuidos en tres hileras; aletas pectoral y anal hialinas; y 9-10 hileras de escamas sobre la serie de la línea lateral. La presente contribución eleva el número de especies del grupo *Eigenmannia trilineata* a 13, y a 18 aquellas dentro del género.

Palabras Clave: Biodiversidad, Pez cuchillo, Peces eléctricos, Taxonomía.

Introduction

Commonly known as electric glass knifefishes or ituí transparente, *Eigenmannia* Jordan & Evermann, 1896 is a genus of weakly electric freshwater fishes broadly distributed throughout most of the Neotropics on both sides of the Andes, from Panama to northern Argentina (Albert, 2001, 2003). Species within the genus exhibit a wave-type electric organ discharge and can be found in diverse habitats, from small streams and tributaries to floodplain lakes and large river channels (Crampton, Albert, 2006).

Following a series of contributions (Eigenmann, 1893; Jordan, Evermann, 1896; Ellis, 1913; Mago-Leccia, 1994; Triques, 1996; Albert, 2001; Peixoto *et al.*, 2015; Peixoto, Wosiacki, 2016; Campos-da-Paz, Queiroz, 2017), seventeen species are currently recognized as valid in the genus *Eigenmannia*: *E. antonioi* Peixoto, Dutra & Wosiacki, 2015 from the rio Anapu, rio Amazonas basin; *E. besouro* Peixoto & Wosiacki, 2016 from tributaries in the rio São Francisco basin; *E. correntes* Campos-da-Paz & Queiroz, 2017 from the rio Correntes, rio Paraguay

basin; *E. desantanai* Peixoto, Dutra & Wosiacki, 2015 from the rio Cuiabá, rio Paraguay basin; *E. guairaca* Peixoto, Dutra & Wosiacki, 2015 from the riacho Água do Ô, upper rio Paraná basin; *E. humboldtii* (Steindachner, 1878) from the rio Magdalena; *E. limbata* (Schreiner & Miranda Ribeiro, 1903) from the Amazonas basin; *E. macrops* (Boulenger, 1897) from the Amazonas, Orinoco, and Guyanas basins; *E. matintapereira* Peixoto, Dutra & Wosiacki, 2015 from the rio Uneiuxi and rio Urubaxi, rio Negro basin; *E. microstoma* (Reinhardt, 1852) from the rio São Francisco basin; *E. muirapinima* Peixoto, Dutra & Wosiacki, 2015 from small tributaries of the Amazon River; *E. nigra* Mago-Leccia, 1994 from the rio Negro, rio Orinoco, and rio Amazonas basins; *E. pavulagem* Peixoto, Dutra & Wosiacki, 2015 from tributaries of the rio Capim, rio Guamá basin; *E. trilineata* López & Castello, 1966 from the rio de La Plata and rio Paraná; *E. vicentespelaea* Triques, 1996 from the São Vicente I and II caves, rio Tocantins basin; *E. virescens* (Valenciennes, 1836) from the rio Paraná; and *E. waiwai* Peixoto, Dutra & Wosiacki, 2015 from the rio Trombetas basin.

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Albert (2001) proposed two species groups within *Eigenmannia*: the *E. microstoma* species group (consisting of *E. humboldtii*, *E. microstoma*, *E. nigra*, and *E. limbata*), with members possessing a deeper adult body size (>11% TL), and the *E. virescens* species group (consisting of *E. virescens*, *E. trilineata*, and an undescribed species), with members possessing two to three longitudinal stripes and highly branched anterior intermuscular bones. Recently, Peixoto *et al.* (2015) proposed a new classification for the longitudinally striped species, erecting the *Eigenmannia trilineata* species group, consisting of *E. antonioi*, *E. desantanai*, *E. guairaca*, *E. matintapereira*, *E. microstoma*, *E. muirapinima*, *E. pavulagem*, *E. trilineata*, *E. vicentespelaea*, and *E. waiwai* (thus removing *E. microstoma* from the *E. microstoma* species group and *E. trilineata* from the *E. virescens* species group). Most recently, two species were described for the group, *E. besouro* and *E. correntes* (Peixoto, Wosiacki, 2016; Campos-da-Paz, Queiroz, 2017). All current members of the *Eigenmannia trilineata* species group are found in the Amazon, Paraguay, Paraná, La Plata, and São Francisco drainages.

Based on analysis of material collected in the río Orinoco basin, we describe a new species of *Eigenmannia* belonging to the *E. trilineata* species group.

Material and Methods

Morphometric, meristic, and osteological nomenclature follow Lundberg, Mago-Leccia (1986) and Peixoto *et al.* (2015). Measurements were taken point-to-point to the nearest 0.1 mm using digital calipers under a stereomicroscope, preferentially utilizing the left side of each specimen. Abbreviations reported in this manuscript are total length (TL), the distance from the tip of the snout to distal margin of the caudal filament; length to end of anal fin (LEA), from the tip of the snout to the insertion of the last anal-fin ray; and head length (HL), from the tip of the snout to the posterior-most margin of the branchial opening. In the description, the frequencies of each count are expressed in parentheses and holotype data are indicated by an asterisk. In the pectoral and anal-fin ray counts, unbranched rays are represented by lower case Roman numerals and branched rays are indicated by Arabic numerals. Specimens were cleared and stained (c&s) following the protocol of Taylor, Van Dyke (1985). Pre-caudal vertebrae counts include the four vertebrae of the Weberian apparatus. Herein, the “lateral line stripe” refers to the dark stripe along the lateral line; the “superior midlateral stripe” refers to the concentration of small separate chromatophores with diffuse margins located below the lateral line; the “inferior midlateral stripe” refers to the dark stripe located over the proximal portion of anal-fin pterygiophores; and the “anal-fin base stripe” refers to the dark stripe located on the base of the anal fin (Peixoto *et al.*, 2015; Peixoto, Wosiacki, 2016). Morphological data of *E. correntes* were based on Campos-da-Paz, Queiroz (2017). Infraorbitals, premaxillary, dentary, and maxillary bones

were cleared of soft tissue for scanning electron micrograph imaging by immersion in a 1% sodium hypochlorite solution for less than five minutes followed by air drying. Museum acronyms follow the guidelines of Sabaj (2016). Some specimens were excluded from the type series due to poor preservation status. No type-material was deposited in the country of origin of the new species due to a series of unsuccessful efforts.

Results

Eigenmannia sayona, new species

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Fig. 1

Holotype. MZUSP 96497, 131.8 mm LEA, Venezuela, Bolivar, Cedeño, río Parguaza, río Orinoco basin, near the community of Puente Parhueña, 5°53'30"N 67°24'14"W, 19 Jul 2004, M. de Pinna & C. Oliveira.

Paratypes. All from Venezuela. Bolivar: FMNH 130239, 1, 95.4 mm LEA; MPEG 33926, 1, 103.7 mm LEA; MZUSP 119711, 6 + 2 c&s, 27.8-116.2 mm LEA, collected with the holotype. MZUSP 96465, 1, 116.2 mm LEA, Caicara del Orinoco, río Orinoco, Laguna de Castilleros, 7°30'51"N 66°09'20"W, 22 Jul 2004, M. de Pinna & C. Oliveira.

Non-types. All listed specimens were directly preserved in alcohol (except USNM specimens). Venezuela. Apure: USNM 260225, 13, 47.1-68.5 mm LEA, Caño Caicara. Bolivar: LBP 2225, 1, 54.7 mm LEA, Caicara del Orinoco, río Orinoco, Laguna de Castilleros. LBP 2311, 3, 91.1-107.5 mm LEA, Cedeño, río Orinoco, río Parguaza. LBP 3083, 4, 53.6-65.1 mm LEA, Caicara del Orinoco, río Orinoco. LBP 9976, 3, 57.7-89.9 mm LEA (two specimens measured; one specimen damaged), Caicara del Orinoco, río Orinoco, Laguna de Castilleros.

Diagnosis. *Eigenmannia sayona* can be distinguished from its congeners, except species of the *E. trilineata* species group, by the presence of a superior midlateral stripe (*vs.* absence). *Eigenmannia sayona* can be differentiated from congeners in the *E. trilineata* species group by the ossification of the first basibranchial (Fig. 2) (*vs.* unossified). The new species can be distinguished from congeners in the *E. trilineata* species group, except *E. correntes*, by the unique dentition pattern of the premaxilla, 17 teeth distributed in three irregular rows (Fig. 3) (*vs.* eight to 12 teeth distributed in two rows in *E. antonioi*; 18-29 teeth distributed in three or four rows in *E. besouro*; 24 or 25 teeth distributed in four rows in *E. desantanai*; nine or ten teeth distributed in two rows in *E. guairaca*; 22-24 teeth distributed in four rows in *E. matintapereira*; 16 teeth distributed in three rows in

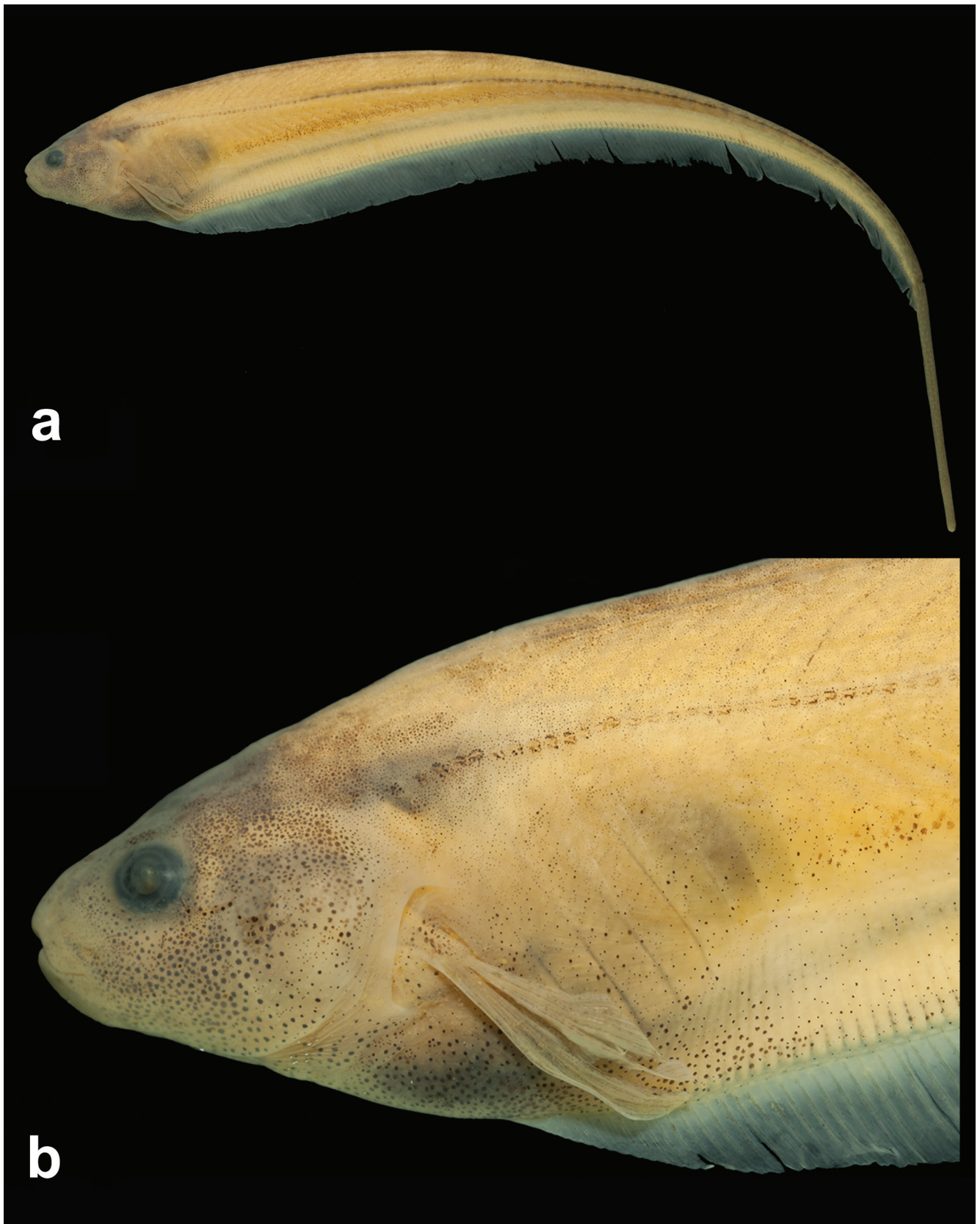


Fig. 1. Holotype of *Eigenmannia sayona*, new species, MZUSP 96497, 131.8 mm LEA, Venezuela, Bolivar, Cedeño, río Orinoco, río Parguaza, near the community of Puente Parhueña. **a.** Lateral view of head and body; **b.** Lateral view of head.

E. microstoma; eight to ten teeth distributed in two rows in *E. muirapinima*; 13-16 teeth distributed in three rows in *E. pavulagem*; 31-33 teeth distributed in four rows in *E. trilineata*; 25 or 26 teeth distributed in four rows in *E. vicentespelaea*; 35 or 40 teeth distributed in five rows in *E. waiwai*). The new species can be differentiated from *E. besouro*, *E. correntes*, *E. desantanai*, *E. guairaca*, *E. matintapereira*, *E. microstoma*, *E. trilineata*, *E. vicentespelaea*, and *E. waiwai* by the dentition pattern of the dentary, with teeth increasing abruptly in size from the sixth or seventh tooth (Fig. 4) (vs. dentary teeth similar in size). *Eigenmannia sayona* can be further distinguished from other species in the *E. trilineata* species group, except *E. antonioi*, *E. matintapereira*, *E. microstoma*, *E. muirapinima*, *E. pavulagem*, and *E. trilineata*, by the number of anal-fin rays, 198-217 (vs. 150-181 in *E. besouro*; 143-164 in *E. correntes*; 170-196 in *E. desantanai*; 151-170 in *E. guairaca*; 169-191 in *E. vicentespelaea*; 167-195 in *E. waiwai*). The new species can be distinguished from *E. besouro*, *E. desantanai*, *E. muirapinima*, *E. vicentespelaea*, and *E. waiwai* by the number of tooth rows on the endopterygoid, 1 (vs. 2). The new species can be differentiated from *E. besouro*, *E. correntes*, *E. desantanai*, *E. guairaca*, *E. microstoma*, and *E. trilineata* by the number of precaudal vertebrae, 13 (vs. 14; 14; 11-12; 15; 14-15; and 14, respectively). *Eigenmannia sayona* can be differentiated from *E. antonioi*, *E. correntes*, *E. desantanai*, *E. guairaca*, *E. muirapinima*, *E. pavulagem*, *E. vicentespelaea*, and *E. waiwai* by the length of the anterodorsal process of maxilla being equal to the width of the posterior nostril (Fig. 5) (vs. equal to 1.5 times the width of the posterior nostril in *E. waiwai*; or approximately 20-50% of the width of the posterior nostril in aforementioned species - Fig. 4b of Peixoto *et al.*, 2015). *Eigenmannia sayona* can be further differentiated from *E. besouro*, *E. correntes*, *E. matintapereira*, *E. trilineata*, and *E. waiwai* by the depth of the posterodorsal expansion on infraorbitals 1+2, approximately equal to the total length of infraorbitals 1+2 (Fig. 6) (vs. less than 50% of the length of infraorbitals 1+2). The new species differs from *E. besouro*, *E. correntes*, *E. vicentespelaea* and *E. waiwai* by possessing a terminal mouth (vs. subterminal). The new species can be distinguished from *E. microstoma* and *E. trilineata* by the suborbital depth, 20.6-26.8% HL (vs. 29.9-40.8%; and 32.5-46.6%, respectively). *Eigenmannia sayona* can be distinguished from *E. microstoma* and *E. vicentespelaea* by the number of scales above lateral line, 9-10 (vs. 11-15; and 7-8, respectively). *Eigenmannia sayona* can be differentiated from *E. matintapereira*, *E. trilineata*, and *E. vicentespelaea* by the number of pectoral-fin rays, ii,12-13 (vs. ii,16-17; ii,14-15; and ii,15-17, respectively). *Eigenmannia sayona* can be differentiated from *E. matintapereira*, *E. muirapinima*, and *E. waiwai*, by oral width, 18.7-21.7% HL (vs. 12.6-16.1%; 13.2-18.1%; and 9.5-14.6%, respectively). *Eigenmannia sayona* can be further distinguished from *E. guairaca* and *E. waiwai* by orbital diameter, 17.3-22.4% HL (vs. 11.4-15.0%; and 22.6-28.8%, respectively). *Eigenmannia sayona* differs

from *E. guairaca* by postorbital distance, 50.1-55.5% HL (vs. 56.8-61.9%). *Eigenmannia sayona* can be distinguished from *E. matintapereira* by the pectoral-fin coloration hyaline (vs. uniformly dark or with a median blotch); by the anal-fin distal margin coloration hyaline (vs. uniformly darkened); and by the posterior nostril to orbit distance, 6.9-9.9% HL (vs. 2.5-6.6%). The new species can be further distinguished from *E. vicentespelaea* by the snout length, 22.5-28.3% HL (vs. 28.6-36.8%).

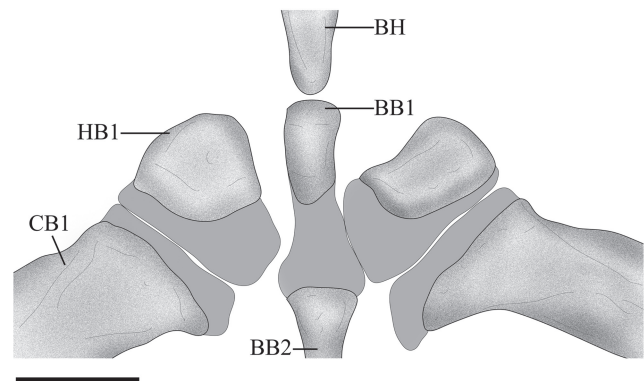


Fig. 2. Dorsal view of anterior portion of gill arches of *Eigenmannia sayona* (MZUSP 119711, paratype, 90 mm LEA). BH= basihyal; BB1= basibranchial 1; BB2= basibranchial 2; HB1= hypobranchial 1; CB1= ceratobranchial 1. Cartilage represented by gray coloration. Scale bar: 0.5 mm.



Fig. 3. Scanning electron micrograph. Ventral view of left premaxilla, showing the dentition pattern of *Eigenmannia sayona* (MZUSP 119711, paratype, 116.2 mm LEA). Scale bar: 0.5 mm.

Description. Species of small/medium size, maximum length recorded 131.8 mm TL. Morphometric data is presented in Tab. 1. Body elongate and laterally compressed. Dorsal profile of body nearly straight or slightly convex from posterior margin of head to vertical line through middle of anal fin, and then posterodorsally angled in a straight line to distal portion of caudal filament. Ventral profile of body

slightly concave along anterior half of abdominal cavity; then posteriorly angled to last anal-fin ray. Ventral profile of caudal filament straight. Greatest body depth at vertical line through distal margin of pectoral fin. Head laterally compressed, greatest width at posterior opercular region and greatest depth at posterior margin of supraoccipital. Dorsal profile of head slightly convex or nearly straight from upper lip to vertical through branchial opening. Ventral profile of head slightly concave from anterior margin of lower lip to branchial opening. Snout rounded in profile. Mouth terminal. Upper lip slightly overlapping lower lip or lips equal in length. Premaxilla teeth 17(2) in three rows [outermost row with 4(2) teeth; median row with 6(2); innermost row with 7(2) teeth, Fig. 3]. Maxilla with sickle-shaped anterodorsal process equal to the width of posterior nostril. Dentary teeth 19(1) or 26(1) in two irregular rows [outermost row with 11(1) or 14(1); innermost row teeth, 8(1) or 12(1), Fig. 4]. Dentary teeth increasing abruptly in size from the sixth or seventh tooth of outermost row towards rictus. Coronomeckelian bone equal to 30% of length of Meckel's cartilage. Endopterygoid teeth 8(1) or 9(1) in a single row. Mouth rictus at vertical line through anterior nostril or in region between nostrils. Anterior nares tubular, posterior margin at vertical line through posterior margin or middle portion of rictus. Posterior nares elliptical, non-tubular, and closer to anterior margin of eye than tip of snout. Eye approximately circular, covered by skin, lateral on anterior half of head. Antorbital and infraorbitals 1-4 enlarged partial cylinders with slender osseous arches. Fifth and sixth infraorbitals slender and tubular. Depth of posterodorsal expansion on infraorbitals 1+2 equal to total length of infraorbitals 1+2 (Fig. 5). Branchial opening moderately elongate. Branchial membrane joined with isthmus. Anus and urogenital papilla shifting anteriorly during ontogeny, from vertical line through posterior portion of opercle in juveniles [minimum examined 47.1 mm LEA] to vertical line through posterior portion of eye in adults. Anus and urogenital papilla at vertical line through posterior margin of eye in mature specimens.

Cycloid scales present from posterior margin of head to distal portion of caudal filament. Lateral line complete, 122(2), 124(1), 125(2), 127(2), 128*(1), 132(1), 134(2) or 136(1) perforated scales to vertical line through end of anal fin (N=12). Longitudinal series of scales above lateral line at distal margin of pectoral fin, 9*(5), 10(7) or 11(4). Scales over anal-fin pterygiophores approximately one-half size of others.

Pectoral-fin rays, ii,12*(6) or ii,13(11); distal margin slightly rounded; tip reaching vertical through 16th to 27th anal-fin ray. Anal-fin origin posterior to vertical line through pectoral-fin base; total anal-fin rays, 198*-217 (N=14); distal margin of anal fin slightly convex. Caudal filament cylindrical, tapering gradually distally, relatively short and approximately 40% of LEA in mature specimens.

Precaudal vertebrae 13(2). Anterior vertebrae 10(1) or 12(1), transitional vertebrae 1(1) or 3(1). Displaced hemal spines 3(2).

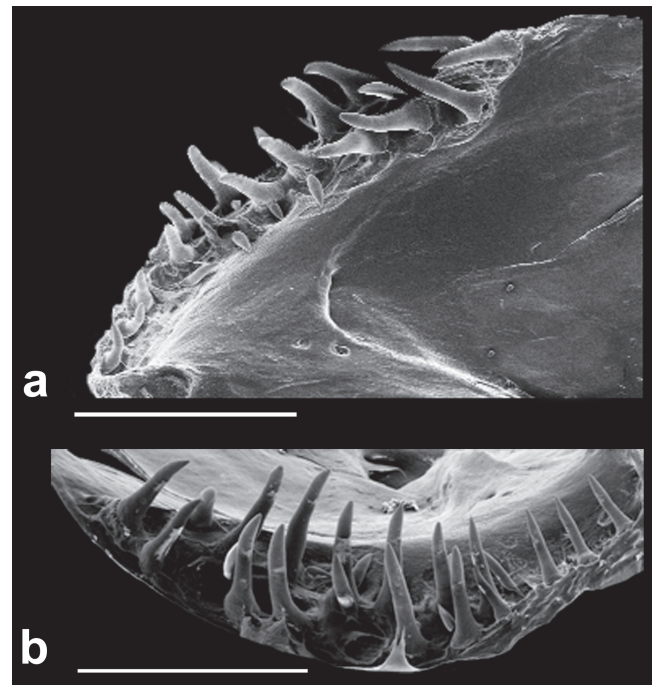


Fig. 4. Scanning electron micrographs. (a) lateral view and (b) dorsal view of right dentary of *Eigenmannia sayona* (MZUSP 119711, paratype, 116.2 mm LEA), showing the dentition pattern. Scale bar: 1 mm.



Fig. 5. Scanning electron micrograph of left maxilla (inverted) of *Eigenmannia sayona* in lateral view, anterior to left (MZUSP 119711, paratype, 116.2 mm LEA). CT= connective tissue on leading edge of maxilla. Arrow indicates the anterodorsal process. Scale bar: 0.5 mm.

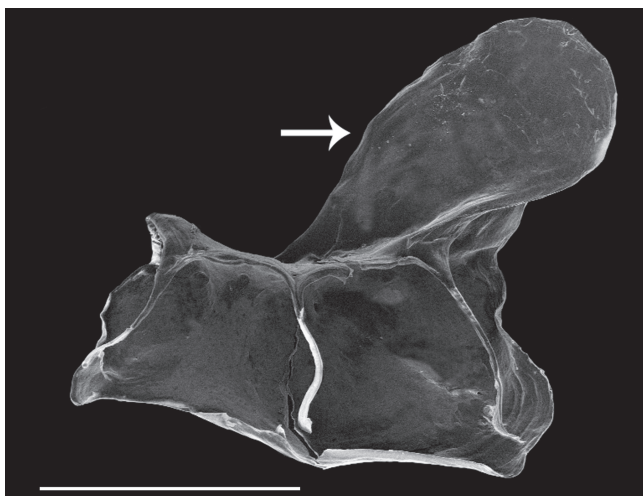


Fig. 6. Scanning electron micrograph of right infraorbital 1+2 of *Eigenmannia sayona* in lateral view, anterior to right (MZUSP 119711, paratype, 116.2 mm LEA). Arrow indicates the posterodorsal expansion. Scale bar: 1 mm.

Tab. 1. Morphometric data for *Eigenmannia sayona*, new species. Min= minimum; Max= maximum; SD= standard deviation; N= number of specimens measured.

	Holotype	Min	Max	Mean	SD	N
Total length (mm)	160.0	113.8	160.0	-	-	13
Length to end of anal fin (mm)	131.8	65.3	131.8	-	-	14
Head length (mm)	13.6	9.2	15.8	-	-	14
Percentage of LEA						
Head length	10.3	10.3	15.1	12.3	1.7	14
Preanal distance	13.5	12.7	18.9	15.2	1.9	14
Prepectoral distance	11.3	11.3	16.3	13.1	1.8	14
Snout to anus	5.6	5.6	8.0	6.8	0.9	14
Body depth at pectoral fin	13.3	12.9	18.8	15.6	2.1	14
Body depth at anal fin	12.1	11.7	16.0	13.9	1.5	14
Body width	4.2	4.1	6.1	4.9	0.8	14
Anal-fin length	89.6	80.0	89.6	85.4	2.1	14
Pectoral-fin length	7.7	7.3	11.2	8.6	1.5	13
Caudal-filament length	22.6	21.2	44.5	34.8	7.9	11
Caudal-filament depth	1.6	1.2	2.6	1.4	0.1	11
Caudal-filament width	1.0	0.7	1.1	0.9	0.1	11
Percentage of HL						
Snout length	25.1	22.5	28.3	25.3	1.8	16
Internasal distance	9.5	7.2	10.5	9.0	1.1	16
Snout to posterior naris distance	19.8	16.3	21.0	19.0	1.6	16
Posterior naris to orbit distance	7.3	6.9	9.9	8.1	1.1	16
Internarial width	17.3	14.6	18.4	16.8	1.1	16
Orbital diameter	20.6	17.3	22.4	20.1	1.2	16
Postorbital distance	52.3	50.1	55.5	52.4	1.9	16
Opercular opening	25.9	23.9	32.1	28.2	1.9	16
Suborbital depth	21.3	20.6	26.8	23.2	2.1	16
Interorbital distance	34.0	27.9	37.2	33.2	1.9	16
Head width at opercle	63.3	58.3	66.1	61.4	2.6	16
Head width at orbits	50.9	39.5	50.9	46.3	2.9	16
Head depth at supraoccipital	77.9	74.2	82.3	79.1	2.3	16
Head depth at orbits	58.4	53.9	64.2	58.5	3.1	16
Maxilla length	23.2	15.9	23.2	19.4	2.5	16
Oral width	20.1	18.7	21.7	20.0	1.1	16

Coloration in alcohol. Background color dark yellow. Dorsal region of head dark yellow; gradually lighter ventrally with sparse chromatophores in ventral portion. Lips and suborbital region light brown. Dorsal region of body dark brown, gradually lighter ventrally towards region overlying anal-fin pterygiophores. Four dark longitudinal stripes along body. Lateral-line stripe thin, one or two scales deep, extending from first perforated lateral-line scale to distal portion of caudal filament. Superior midlateral stripe thick, two scales deep, tapering approximately from vertical line between base of 20th to 28th anal-fin ray to posterior second-third of body in specimens. Inferior midlateral stripe moderately thick, two or three scales deep, extending from vertical line approximately between base of 25th to 30th anal-fin ray to posterior-most one-third of body. Anal-fin base stripe thick, two scales deep, extending from vertical between base of first anal-fin ray to last anal-fin ray. Pectoral and anal fins hyaline, scattered tiny chromatophores on interradial membranes.

Geographic distribution. *Eigenmannia sayona* is known from río Orinoco basin, from río Parguaza, río Apure, and Laguna de Castilleros, Venezuela (Fig. 7).

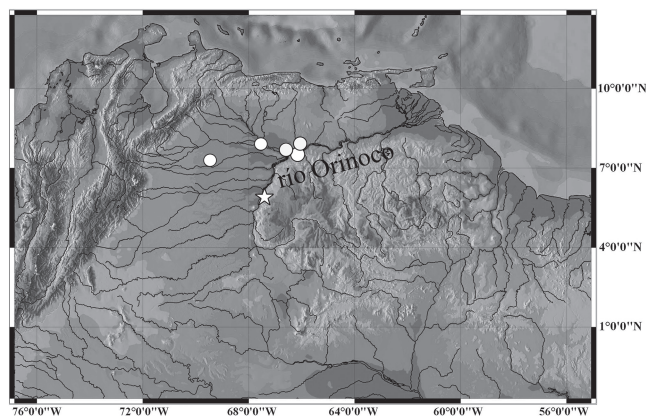


Fig. 7. Map of northern South America, illustrating the geographic distribution of *Eigenmannia sayona*. Star indicates type locality. Some points represent more than one locality.

Etymology. The specific epithet “sayona” is assigned to the new species in reference to “La Sayona”, a spirit of philanderous vengeance in Venezuelan lore. A noun in apposition.

Discussion

Currently, *Eigenmannia* lacks diagnostic characters common to all species within the genus (Mago-Leccia, 1994; Albert, 2001), resulting in confusion regarding the generic limits within Sternopygidae. Thus, we opt to identify *E. sayona* as a member of *Eigenmannia* by its possession of all synapomorphies common to the Eigenmanniinae (Albert, 2001), and the absence of most characters diagnostic to other genera of Sternopygidae.

Correa *et al.* (2006) proposed six synapomorphies for *Rhabdolichops*, none of which are present in *E. sayona*. Another eigenmanniini genus, *Distocyclus*, was recently distinguished from other genera in the subfamily by four autapomorphies (see Dutra *et al.*, 2014), of which *E. sayona* shares none. Vari *et al.* (2012) proposed four synapomorphies for *Archolaemus*, all of which are absent in *E. sayona*, except for the ventral surface of the upper lip porous, possibly representing a case of convergence (Vari *et al.*, 2012 noted another possible convergence of upper lip surface morphology between *Archolaemus* and an undescribed species in the *E. trilineata* group). In the same study, Vari *et al.* (2012) proposed six synapomorphies for *Japigny*, all of which are absent in *E. sayona*. Therefore, *E. sayona* can be excluded from all other diagnosed genera in Eigenmanniinae and is assigned provisionally to the genus *Eigenmannia*.

Approximately 50 species of gymnotiforms inhabit the río Orinoco basin (Mago-Leccia, 1994; Campos-da-Paz, 1995; Albert, 2003; Campos-da-Paz, 2003; de Santana, Crampton, 2007, 2011; de Santana, Vari, 2009, 2010a, 2010b, 2012, 2014; Lundberg *et al.*, 2013; Ivanyisky, Albert, 2014). Five species of *Eigenmannia* have been reported, among them: *E. limbata*, *E. humboldtii*, *E. macrops*, *E. nigra*, and *E. virescens* (e.g. Mago-Leccia, 1978; Mago-Leccia, 1994; Albert, 2001, 2003; Lasso *et al.*, 2004).

In the most complete taxonomic study of sternopygids from Venezuela, Mago-Leccia (1978) recorded the presence of *E. virescens* and *E. macrops* (aside from *E. humboldtii*, which may refer to *E. limbata*, and *E. nigra*), in the río Orinoco basin. However, the specific delimitations of *E. macrops* and *E. virescens* are historically controversial due to taxonomic confusion resulting from insufficient descriptions and inadequate diagnostic characters. The lack of type material and type-locality information regarding *E. virescens* has led us to restrict the application of this name only to populations without stripes from the La Plata and Paraná basin (see additional comments in Peixoto *et al.*, 2015). Furthermore, Mago-Leccia (1978) mentions two or three longitudinal stripes associated with and near the lateral line in specimens identified by him as *E. virescens*; however, this information does not correspond to Valenciennes (1836; plate xiii), which includes a drawing of a specimen without longitudinal stripes on body surface. Thus, the identity of the specimens listed as *E. virescens* in Mago-Leccia (1978) remains uncertain.

Similarly, analyses performed on the holotype and topotypes of *E. macrops* raise concern regarding the identity of specimens listed as *E. macrops* from the data presented in Mago-Leccia (1978). Mago-Leccia (1978) described the presence of two or three stripes on the body surface of *E. macrops*; however, this character contradicts the original description by Boulenger (1897), which described the body surface of *E. macrops* as uniform pale brownish. Because of these conflicting descriptions, we opt to temporarily consider the material listed in Mago-Leccia (1978) to be two unnamed species of *Eigenmannia*. Unfortunately, the

listed specimens could not be analyzed during this study due to difficulty in accessing the material. A study is currently in development to clarify the taxonomic uncertainty surrounding the identity of *E. macrops* and *E. virescens*.

Comparative material examined. Material examined in addition to that listed in Peixoto *et al.* (2015). *Eigenmannia macrops*: **Guyana**: BMNH 1897.8.6.1, holotype of *Sternopygus macrops*, 128.6 mm LEA. USNM 405266, 6 of 16, 65.7-163.9 mm LEA. *Eigenmannia guairaca*: **Brazil**: LBP 9911, 1 of 3, 104.9 mm LEA. *Eigenmannia nigra*: **Brazil**: MPEG 2430, 7+1c&s, 154.0-262.5 mm. *Eigenmannia limbata*: **Brazil**: MZUSP 75569, 1 of 2, 231.2 mm LEA.

Acknowledgments

The authors acknowledge James Maclaine (BMNH); Leo Smith, Mary Rogers, Susan Mochel, and Caleb McMahan (FMNH); Claudia Uribe (IAvH); Lúcia Py-Daniel and Renildo de Oliveira (INPA); Gustavo Chiamonte and Ricardo Ferriz (MACN); Zilda Lucena and Carlos Lucena (MCP); Marcelo Britto (MNRJ); José Figueredo, Naércio Menezes, Mário de Pinna, Osvaldo Oyakawa, Aléssio Datovo and Michel Gianeti (MZUSP); Carla Pavanelli (NUP); Richard Vari, Lynne Parenti, Jeff Clayton, and Sandra Raredon (USNM); Cláudio Oliveira (LBP); Wolmar Wosiacki and Izaura Guimarães (MPEG) for the loan of specimens and assistance during visits to their institutions. The authors also acknowledge Fernando Dagosta for assistance in preparation of the holotype figure and Gustavo Ballen for providing the “Resumen”. The authors thank the Laboratório de Microscopia Eletrônica do Museu de Zoologia and Lara Guimarães (MZUSP) for the technical support during the preparation of scanning electron micrographs images. This manuscript has benefitted by helpful comments and suggestions from James Albert and Maxwell Bernt. BTW acknowledges his wife, Kassandra Waltz, for her patience and helpful comments throughout the development of the study. LAWP is supported by FAPESP (processes# 2013/09926-3 and BEPE 2015/24709-4).

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Submitted January 14, 2016

Accepted January 25, 2017 by George Mattox