The Fishes of the Amazon: Distribution and Biogeographical Patterns, with a Comprehensive List of Species

Authors: Dagosta, Fernando C.P., and Pinna, Mário De

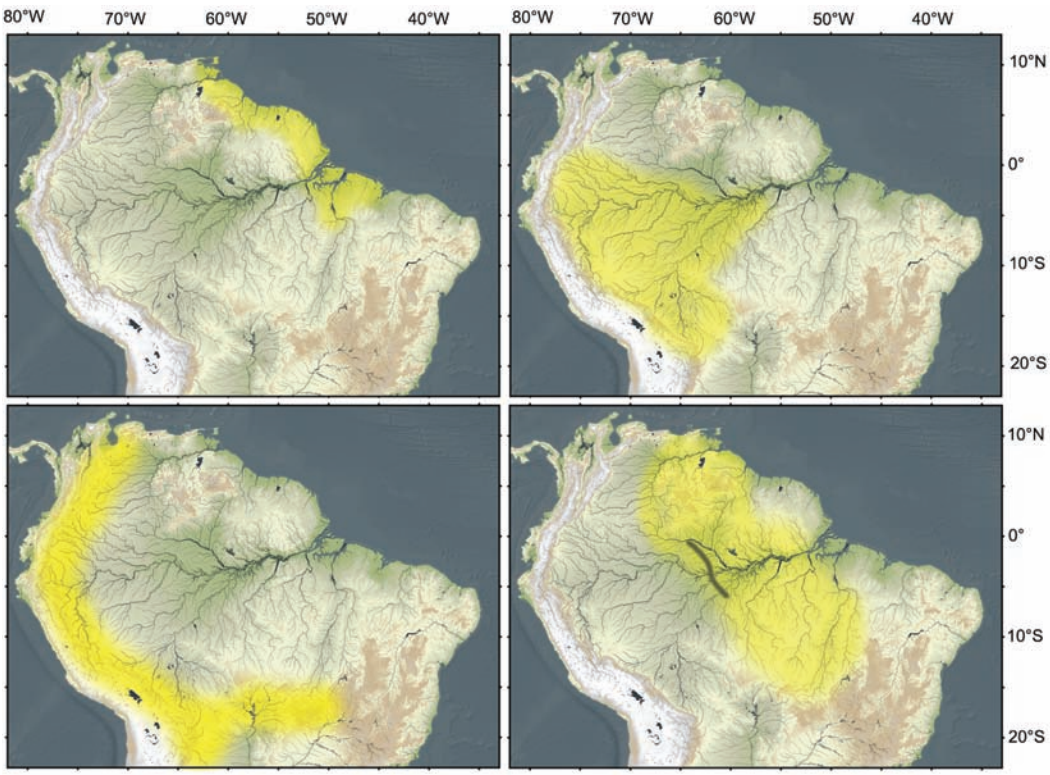
Source: Bulletin of the American Museum of Natural History, 2019(431) : 1-163

Published By: American Museum of Natural History

URL: https://doi.org/10.1206/0003-0090.431.1.1

The Fishes of the Amazon: Distribution and Biogeographical Patterns, with a Comprehensive List of Species

FERNANDO C.P. DAGOSTA AND MÁRIO DE PINNA



BULLETIN OF THE AMERICAN MUSEUM OF NATURAL HISTORY

THE FISHES OF THE AMAZON: DISTRIBUTION AND BIOGEOGRAPHICAL PATTERNS, WITH A COMPREHENSIVE LIST OF SPECIES

FERNANDO C.P. DAGOSTA
Universidade Federal da Grande Dourados
Faculdade de Ciências Biológicas e Ambientais
Dourados, Mato Grosso do Sul, Brazil

MÁRIO DE PINNA
Museu de Zoologia da Universidade de São Paulo
São Paulo, Brazil

BULLETIN OF THE AMERICAN MUSEUM OF NATURAL HISTORY
Number 431, 163 pp., 22 figures
Issued June 13, 2019

ISSN 0003-0090

CONTENTS

ABSTRACT

We provide a general compilation of the diversity and geographical distribution of Amazonian fishes, updated to the end of 2018. Our database includes documented distributions of 4214 species (both Amazonian and from surrounding basins), compiled from published information plus original data from ichthyological collections. Our results show that the Amazon basin comprises the most diverse regional assemblage of freshwater fishes in the world, with 2716 valid species (1696 of which are endemic) representing 529 genera, 60 families, and 18 orders. These data permit a view of the diversity and distribution of Amazonian fishes on a basinwide scale, which in turn allows the identification of congruent biogeographical patterns, here defined as the overlapping distributions of two or more lineages (species or monophyletic groups). We recognize 20 distinct distributional patterns of Amazonian fishes, which are herein individually delimited, named, and diagnosed. Not all these patterns are associated with identifiable geographical barriers, and some may result from ecological constraints. All the major Amazonian subdrainages fit into more than one biogeographical pattern. This fact reveals the complex history of hydrographical basins and shows that modern basin-defined units contribute relatively little as explanatory factors for the present distributions of Amazonian fishes. An understanding of geomorphological processes and associated paleographic landscape changes provides a far better background for interpreting observed patterns. Our results are expected to provide a framework for future studies on the diversification and historical biogeography of the Amazonian aquatic biota.

INTRODUCTION

The Amazon basin is the largest hydrographic drainage on earth, covering ~6×10^6 km^2 (larger still if estuarine coastal areas are included) (Sioli, 1984; Milliman and Farnsworth, 2011), or about one-third of South America. Its discharge is also the largest in the world, with about one-fifth of the entire freshwater volume on the surface of the planet (Callede et al., 2004). Its vast size is matched by an equally vast fauna and flora (Webb, 1995; Patton et al., 2000; Hoorn and Wesselingh, 2010; Cardoso et al., 2017), comprising the richest ecosystem on earth.

Fishes are one of the faunal elements whose Amazonian biodiversity reaches superlative numbers. Despite such megadiversity and the attention it attracts, knowledge about the diversity and geographical distribution of Amazonian fishes is still not synthesized into a general framework that allows broad generalizations. Most data are scattered within thousands of species descriptions, and attempts to synthesize that information are inherently limited by the incomplete nature of their underlying databases. The Amazon basin still lacks a comprehensive list of its fish species and available estimates suggest a number between 1300 and 3500 species (e.g., Géry, 1969; Lundberg et al., 2000, 2010; Junk et al., 2007; Albert et al., 2011; van der Sleen and Albert, 2017). Some studies have tried to correlate Amazonian fish distributions with underlying causal factors that might form the basis for a historical biogeography of these fishes: Eigenmann (1909), Géry (1969), Vari (1988), Jégu (1992a, 1992b), Hubert and Renno (2006), Ribeiro (2006), Albert et al. (2011), Albert and Carvalho (2011), Lima and Ribeiro (2011), Ribeiro et al. (2013), and Dagosta and Pinna (2017). Some other papers focused on only parts of the Amazon are still relevant for the recognition of distribution patterns, including: Kullander (1986), Jégu and Keith (1999), Pearson (1937), Crampton (2011), López-Fernández and Albert (2011), and Lujan and Armbruster (2011).

The paradigm of vicariant biogeography (Croizat et al., 1974; Rosen, 1978; Nelson and Platnick, 1981) postulates that general distribution patterns demand general explanations, usually by associating lineage splitting with the origin of wide-ranging geographical barriers. Despite such conceptual clarity, in practice, the

association of biogeographical patterns with geographical barriers that contributed to taxonomic diversification is difficult because of factors such as dispersal across existing barriers, area coalescence (obliteration of preexisting barriers and resulting biotic dispersal), extinction, and others that make the detection and delimitation of historically cohesive areas (biogeographical units) a complex process (Harold and Mooi, 1994; Szumik et al., 2002). One way to approach the issue is to search for geographical homologies (i.e., biogeographical congruence) in the form of distributional congruence among unrelated taxa (Patterson, 1981; Nelson, 1994; Morrone, 2009) and the application of the notion of primary homology (de Pinna, 1991) as adapted to biogeography (sensu Morrone, 2001, 2009). Despite such caveats, there is ample consensus that the formulation of robust historical biogeographical hypotheses is critically important for understanding biotic diversification and in deciding what conservation policies to adopt (Cracraft, 1994; Crisci, 2000; Whittaker et al., 2005; Guedes et al., 2014).

Analytical considerations aside, the identification of repeated patterns of geographical distribution is the first step toward a formulation of general biogeographical hypotheses. Such a task in itself can be daunting when dealing with large and complex taxonomic groups such as the Amazonian fishes. Basic knowledge about their taxonomy, phylogeny, and distribution has long been so irregularly scattered as to impede proper synthesis. On the other hand, knowledge about the systematics and distribution of Amazonian fish taxa has now accumulated to a degree that synthetic efforts are more enticing than ever before, both at specific and supraspecific levels.

The purpose of this paper is to identify the taxonomic patterns of distribution of Amazonian fishes based on all data currently available in the literature and in some of the largest ichthyological collections with significant Amazonian holdings. The list compiled for this report is an expansion and refinement of the database published in Dagosta and Pinna (2017), the largest previously done on the distribution of Amazonian fishes and provides the first comprehensive list of Amazonian fishes. It permits the identification and delimitation of all repeated patterns of distribution. We also offer a discussion on the possible underlying causes for each of the patterns and on their potential as indicators of a general biogeographical history of the Amazon basin. We expect our work will provide a general framework for the categorization of forthcoming distributional data (new records, new species, and new clades) and facilitate future progress on the biogeography of Amazonian freshwaters.

MATERIALS AND METHODS

Species distributions were compiled from all the information available in the literature, in a total of over 1500 references (see Dagosta and Pinna, 2017: appendices 1–6; and appendix 1, herein, for distributional data on fish species in the Amazon and surrounding basins), including taxonomic revisions, species descriptions, inventories and faunistic lists. Additionally, primary data were obtained from the most relevant (in size and Amazonian coverage) ichthyological collections, namely Instituto Nacional de Pesquisas da Amazônia, Manaus (INPA), Museu Nacional do Rio de Janeiro, Rio de Janeiro (MNRJ), Museu Paraense Emílio Goeldi, Belém (MPEG), Museu de Zoologia da Universidade de São Paulo, São Paulo (MZUSP), and National Museum of Natural History, Washington, DC (USNM). Two smaller collections, LBP (Laboratório de Biologia e Genética de Peixes, Botucatu), and LIRP (Laboratório de Icitiologia de Ribeirão Preto, Ribeirão Preto), were also surveyed because of their unique holdings of material from critical portions of the Brazilian Shield. Examined material is listed in Dagosta and de Pinna, 2017: Supplementary Material 2, and includes all information on source of data (citation, date of publication, and catalog number, when based on collections), institutional catalog, and sample numbers along with published sources for each species. All published information utilized was

qualified as to accuracy regarding species identification and locality. Identifications in collections were verified by direct examination of specimens. Doubtful information was discarded. Compilation of the composition and geographical distribution of Amazonian fishes is updated to the end of 2018.

Maps presented are intended to represent general patterns of distribution and individual species plots can vary slightly within those limits. Delimitation of the Purus Arch follows Sacek (2014). Water type of Amazonian Rivers follows Venticique et al. (2016) (SNAPP Western Amazon Group – Amazon Aquatic Ecosystem Spatial Framework Knowledge Network for Biocomplexity. Usage is granted according to a Creative Commons "CC BY 4.0"). Hydrographic shape used in figures 5 through 22 is from Lehner et al. (2008), courtesy from HydroSHEDS (hydrological data and maps based on shuttle elevation derivatives at multiple scales: http://www.worldwildlife.org/hydrosheds). The shaded relief of South America used in figures 5 through 22 is courtesy of NASA/JPL-Caltech. The delimitation of the Amazonian regions follows Dagosta and Pinna (2017).

The taxonomic arrangement in appendix 1 follows Nelson (2006), except for the inclusion of recently described family Tarumaniidae (de Pinna et al., 2017), for considering Arapaimidae and Serrasalmidae as valid families, for including the genus *Chalceus* in Alestidae, and for adopting Cynolebiidae instead of Rivulidae. Within each family, genera are organized in alphabetical order. Species-level nomenclature follows Fricke et al. (2019), except for the validity of *Astyanacinus*, which is maintained herein since its synonymization within *Astyanax* is considered unjustified.

In figure 1, estimates of the number of fish species in the Congo basin is from Snoeks et al. (2011), in the Mekong from Poulsen et al. (2004), in the Nile from Witte et al. (2009), in the Mississippi from Robinson and Buchanan (1988) and in the Ganges from Sarkar et al. (2012). Figures for other basins (Atrato, Capim, Cauca-Magdalena-Sinú, Coppename-Suriname, Corentyne-Demerara, Essequibo, Maracaibo, Maroni-Approuague, Oiapoque, Paraná-Paraguay, and Parnaíba) are compiled from the present work. Estimates of fish diversity in continents follow Lévêque et al. (2008), except for Europe, which is based on Kottelat and Freyhof (2007); South America, based on Reis et al. (2016); and Central America, based on Matamoros et al. (2015).

A distributional pattern is herein identified as the overlap (or major overlap) of geographical distributions of at least two species or monophyletic groups. Our definition of biogeographical pattern is deliberately broad and based solely on instantaneous geographical distributions of taxa. Thus, the recognition of a pattern herein is agnostic as to its causal reasons. It also does not preclude the possibility that some of the patterns are hierarchically arranged, i.e., that some patterns are actually subpatterns of larger ones. The selection and the delimitation of the distributional patterns are based on a visual analysis of map distributions of all Amazonian fishes, with consideration for previously published proposals. Repeated geographical distributions may be the result of ecological conditions, historical factors or both, and we consider that the identification and characterization of distribution patterns are relevant regardless of their underlying explanation and even without confirmation by rigorous statistical modeling procedures (which would be impossible at this point because of the heterogeneity of data sources).

Actual geographical distributions are a result of past events and processes in combination with present-day constraints not necessarily related to the vicariant processes that generated that diversity. Many factors are brought into consideration when untangling the nature and meaning of a distribution pattern, and those are discussed separately in the relevant sections. Our notion of taxa assumes that they exist as empirically backed biological entities, corresponding to either species or monophyletic groups. Taxonomic entities that are demonstrably not monophyletic are not considered as valid evidence,

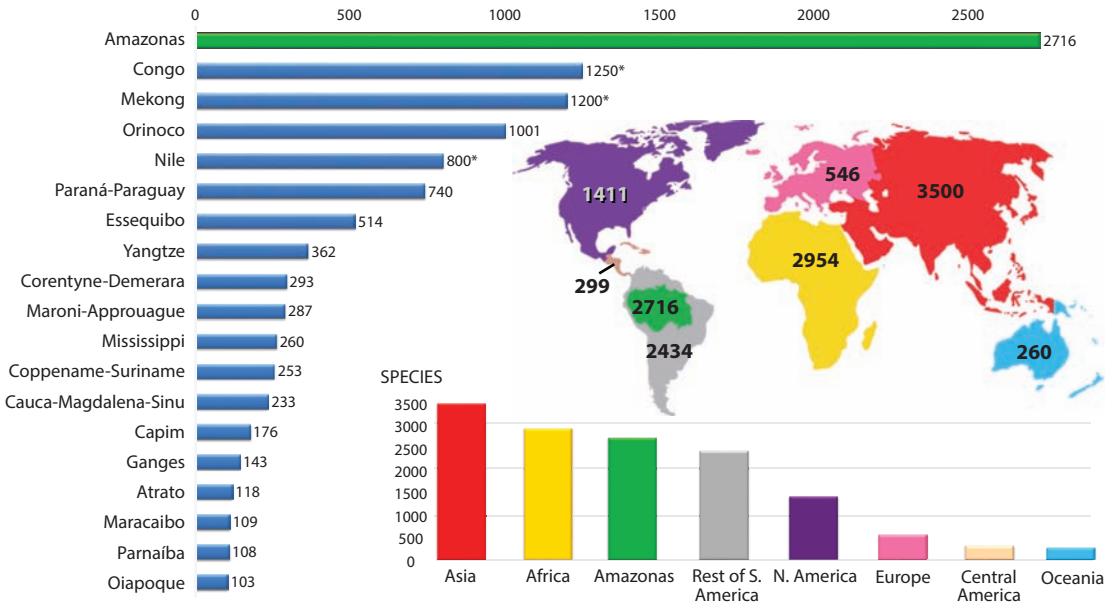


FIG. 1. Number of fish species in the Amazon basin and comparisons with other basins and continents. Left graph: species numbers in the Amazon and other large world basins. Bottom graph and map: species numbers in the Amazon basin compared to those in other continents. An asterisk indicates estimated numbers. For sources of data, see Material and Methods.

even if formally named in classification, because they are not empirically supported as a basis for biogeographical inference.

A chi-square test was used to verify the association of species' distributions with biogeographical patterns proposed (i.e., whether or not the species has a random distribution) and to test whether water type influences the distributions of specific species (appendix 2). The test was applied only to species shown in maps.

RESULTS AND DISCUSSION

Our inventory shows that the Amazonian ichthyofauna is composed of 2716 valid species, included in 529 genera, 60 families, and 18 orders. Such figures make the Amazon drainage, by a wide margin, the basin with the richest fish fauna in the world (fig. 1), with a diversity equivalent to that of some entire continents (fig. 1). As a comparison, the estimated (i.e., not necessarily described) number of species in the second most diverse basin in the world (Congo) is less than half that of the Amazon.

As in other Neotropical, African, and Asian drainages, the majority of Amazonian fishes belongs to the Otophysi (fig. 2), a group representing 80% (2193 spp.) of all Amazonian species. As in other Neotropical basins, the most species-rich orders are Characiformes and Siluriformes. The third largest order in Amazonian waters is the Perciformes, largely due to species of the family Cichlidae. Of the least diverse orders, 10 are from typically marine lineages that secondarily invaded Amazonian waters.

The familial composition also follows that a pattern typical of the majority of continental waters in the neotropics, vastly dominated by small body-size species. Five families (Characidae, Loricariidae, Cichlidae, Cynolebiidae, and Callichthyidae) concentrate most of the diversity (1528 spp. or 56% of Amazonian species), with Characidae alone comprising nearly a quarter of all Amazonian fish species.

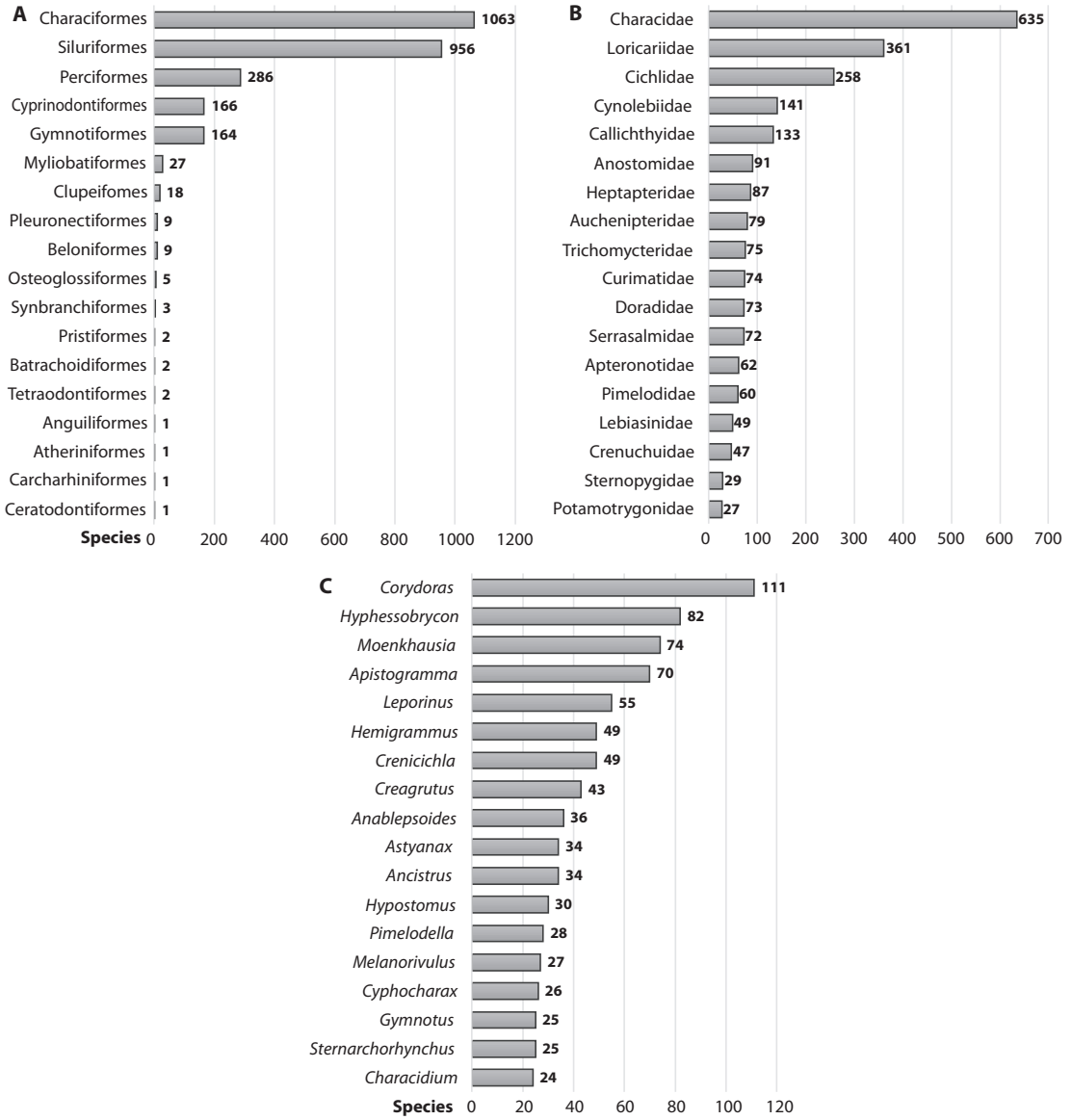


FIG. 2. Richest lineages of Amazonian fishes in number of species: **A,** All orders; **B,** families; **C,** genera.

The most species-rich genera are those composed of small body-size species. Among the 10 richest genera, half are Characidae (fig. 2C), demonstrating that the diversity of that family in the Amazon is concentrated in few genera. The same happens with *Corydoras*, the genus with the most Amazonian species, comprising 111 of the 133 species of Callichthyidae in the basin. Among the most diverse Amazonian genera, three were the object of relatively recent revisions (*Creagrutus*, *Cyphocharax*, and *Sternarchorhynchus*). Such revisionary works increased significantly the number of Amazonian species in the respective lineages: 42% of the Amazonian species of *Creagrutus* were described in Vari and Harold (2001); 28% of

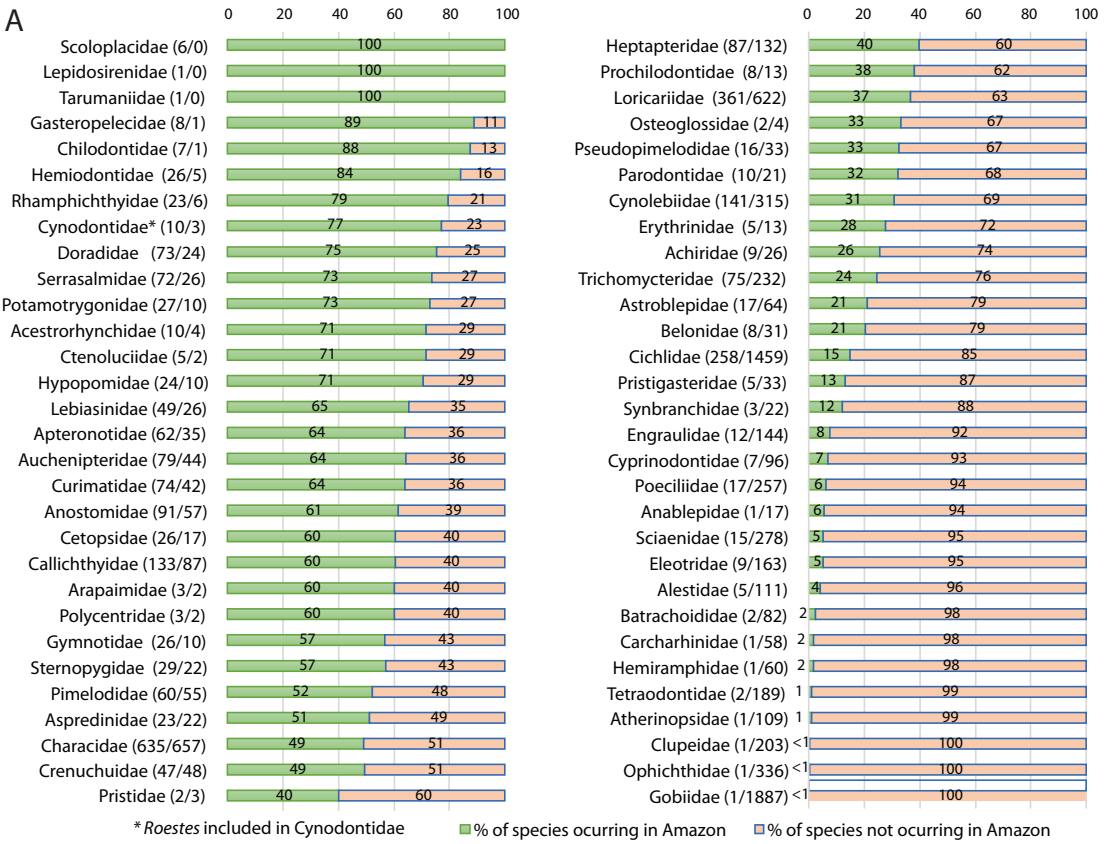
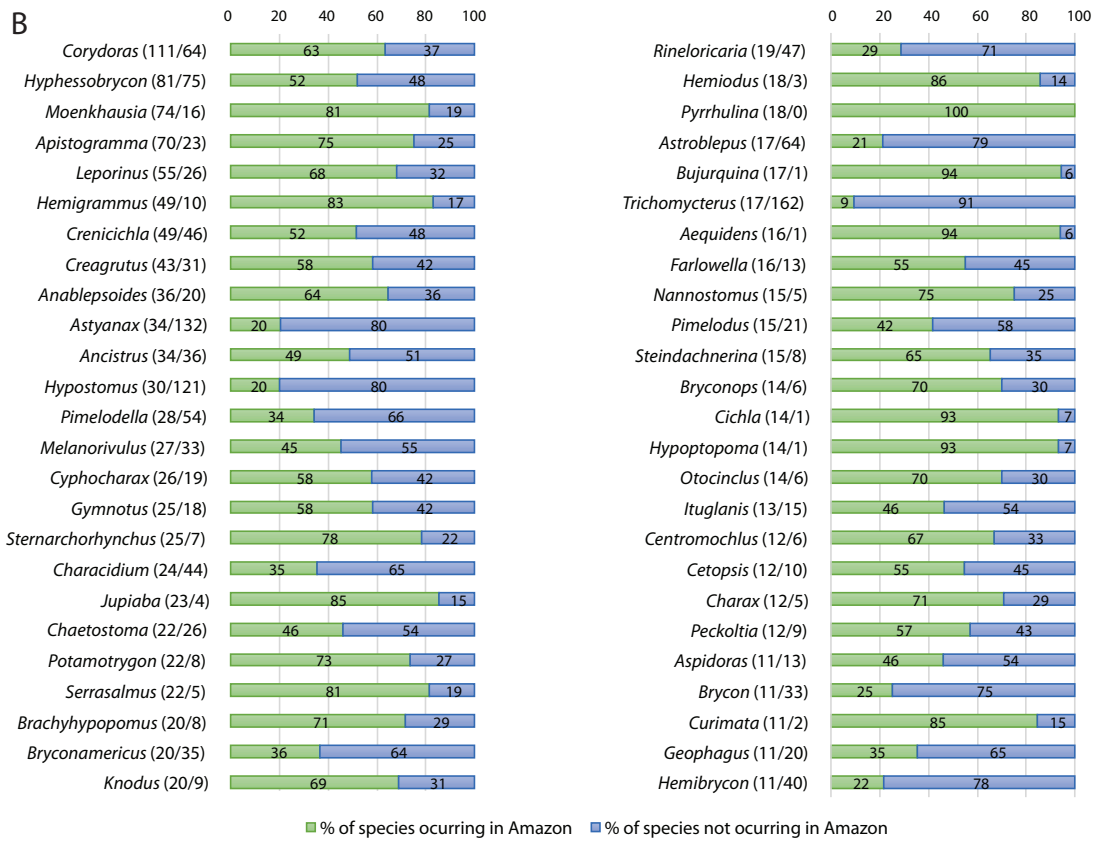


FIG. 3. Proportion of species occurring in the Amazon versus not occurring in the Amazon, by higher taxon. **A.** (*above*) By family. In green, percentage of species in the family occurring in the Amazon; in pink, percentage of species not occurring in the Amazon. **B.** (*opposite page*) Per genera (only 50 most species-rich genera shown). In green, percentage of species occurring in the Amazon; in blue, percentage of species not occurring in the Amazon. Fractions in parentheses represent actual numbers of species occurring (numerator) and not occurring (denominator) in the Amazon. Number of species in each family and genus follows Fricke et al. (2019).

Cyphocharax in Vari (1992a), and 72% of *Sternarchorhynchus* in de Santana and Vari (2010). Thus, the position of those genera among the most diverse in the Amazon, especially in the case of *Cyphocharax* and *Sternarchorhynchus*, may be an artifact resulting from the lack of taxonomic revisions in other potentially more diverse yet poorly studied genera, for example, *Chaetostoma*, *Knodus*, and *Rineloricaria*.

Interesting facts appear when the diversity of the richest Amazonian lineages is compared with equivalent data from outside the basin. The Amazonian fish community is formed both by typically Amazonian lineages (i.e., most or all of their diversity is in the Amazon basin) and by lineages that have greater diversity in other South American basins or in the ocean (fig. 3A). At the family level, it is clear that the Amazon dominates, by a wide margin, the alpha-diversity in the vast majority of primary-division lineages sensu Myers (1938), with relatively little diversity in the secondary and peripheral divisions. The only exclusively Amazonian family is the recently described Tarumaniidae (Scoloplacidae and Lepidosirenidae occur also in the Paraguay basin).

Other interesting patterns are revealed by an examination of intrageneric diversity. The first one is that the most diverse genera in the Ama-



zon have the majority of their species in the basin (fig. 3B). Also, some megadiverse Neotropical genera are relatively poorly represented in the Amazon, such as *Astyanax*, *Trichomycterus*, *Bryconamericus*, *Characidium*, and *Hemibrycon*. This is probably related to the fact that the species of those genera in the Amazon are concentrated along its outer rims, which indicate that their presence in the region is relatively recent, caused by secondary geological events involving adjacent basins. Two cases that stand out are *Astyanax* and *Trichomycterus*, which have their Amazonian diversity concentrated respectively in the upper Tocantins and upper Ucayali, right at the divide with other drainages.

The richest Amazonian tributary is the Rio Madeira (fig. 4), a fact that is attributed not only to its large size, but also to its hybrid nature (Dagosta and Pinna, 2017). The Rio Madeira drains one-third of the Amazonian lowlands and at the same time has tributaries associated with the Andean range and the Brazilian Shield, both areas particularly rich in fish endemics. The Rio Negro is also one of the most diverse Amazonian tributaries (fig. 4), despite its nutrient-poor and extremely acidic waters, which represent ecological barriers to numerous fish species (Goulding et al., 1988; Lima and Ribeiro, 2011). Despite that, the Rio Negro also harbors a large number of endemics (79 spp).

High levels of endemism are also seen in the Marañon and Ucayali (25% and 16%, respectively; fig. 4), a likely result of the Andean range in the diversification of the Amazonian biota. The largest absolute number of endemic taxa (87 spp.) is found in the upper Rio Tocantins followed by the Marañon (81 spp.). Other basins draining Amazonian Shield regions, such as Juruena, Teles Pires, Jari, and Madeira Shield tributaries, also show high levels of endemism,

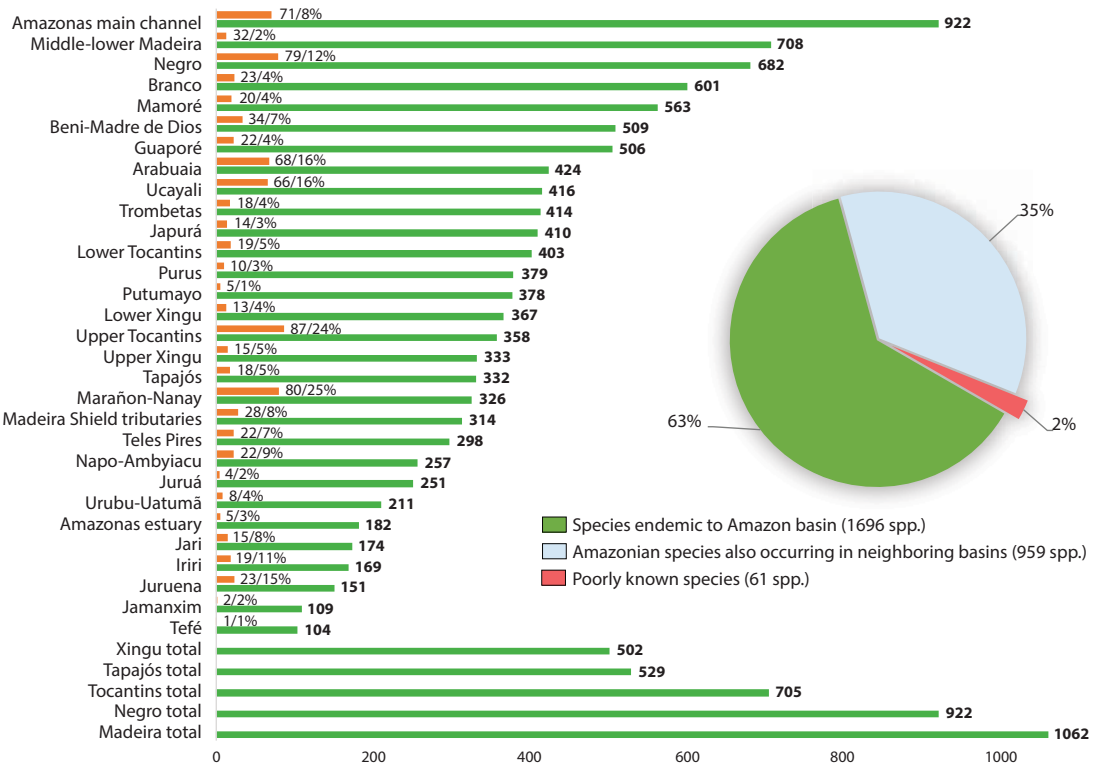


FIG. 4. Amazonian endemic species. Species richness (green) and endemic species (orange) for each of the main Amazonian tributaries or parts thereof. Pie chart indicates the proportion of species occurring exclusively in the Amazon and those also present in other basins. Minor endemic regions not included in graph are: Anapu (2 spp.), Coari-Urucu (1 sp.), Curuá-Paru do Oeste (2 spp.), Paru (2 spp.) and Javari (1 sp.).

although relatively low total numbers of species. Such figures corroborate the hypothesis that highlands have proportionally fewer taxa with broad distributions and fewer cases of sympatry when compared with lowland rivers (Dagosta and Pinna, 2017).

The majority of Amazonian fish diversity is exclusive, with 63% (1696 spp.) of its species found nowhere else (fig. 4). That number alone would place the Amazon as the richest basin in the world in fish species.

PATTERNS OF DISTRIBUTION OF AMAZONIAN FISHES

Below we present the general patterns of distribution herein recognized on the basis of information compiled in appendix 1. Each category listed is described as to its geographical (physical) boundaries and subsequently discussed as to its historical significance, possible causes (if any is identified) and any other relevant points. The taxa supporting each pattern is provided in the text. Patterns are arranged according to logical sections and subsections, with each of them given a name (when a pattern was already recognized in the literature by a widely used name, that name was maintained here) and a number reference, so as to provide an easy reference in future publications.

Broadly Distributed Lineages

This pattern includes lineages which are broadly distributed in major South American drainages such as Amazon, Coastal Atlantic,

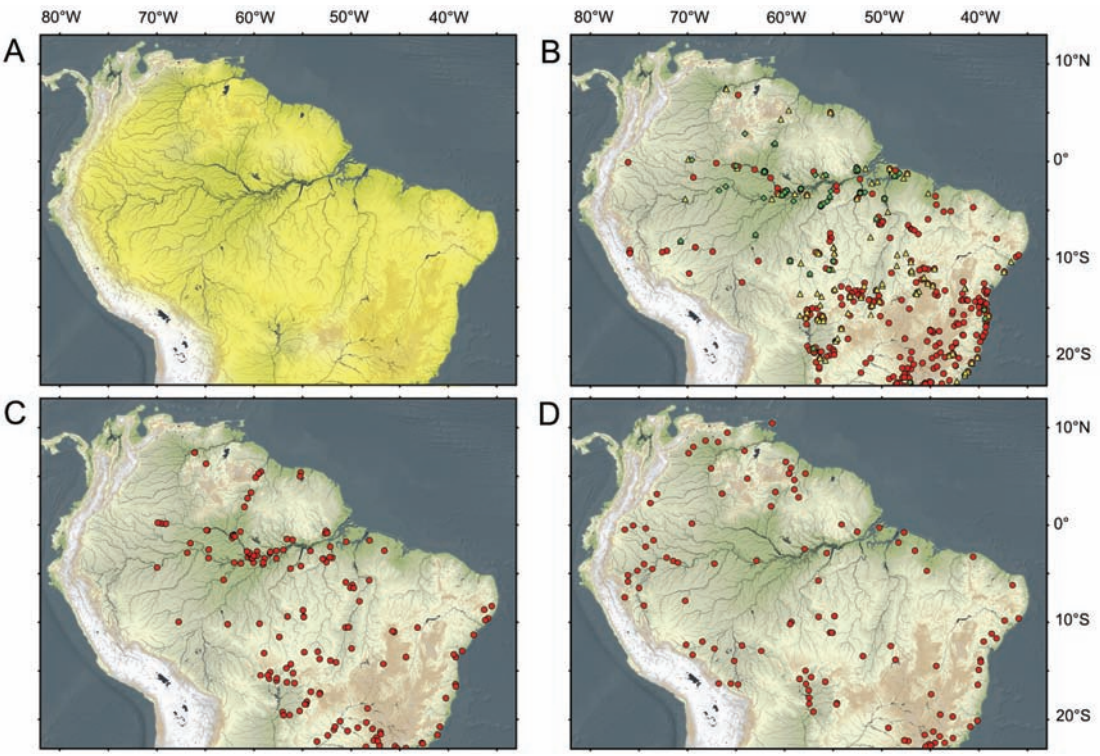


FIG. 5. Broadly distributed lineages. **A.** Yellow area delimits the distribution pattern. **B.** *Hoplias malabaricus* (red dots; records from MZUSP), *Erythrinus erythrinus* (green diamonds; records from MZUSP), *Hoplerythrinus unitaeniatus* (yellow triangles; records from MZUSP). **C.** *Synbranchus marmoratus,* records from MZUSP. **D.** *Callichthys callichthys* (data from Lehmann and Reis (2004) with additional records from MZUSP).

Parana-Paraguay, São Francisco, Orinoco, and Guianan basins (fig. 5A). This is the most common pattern for the majority of families of fishes in the Amazon and also includes a number of genera such as *Acestrorhynchus* (see González, 2015), *Brycon* (see Lima, 2017), *Characidium*, *Crenicichla* (see Ploeg, 1991), *Corydoras*, *Eigenmannia*, *Geophagus*, *Gymnotus* (see Albert et al., 2005), *Hoplosternum* (see Reis, 1997), *Hypostomus*, *Leporinus*, *Megaleporinus* (see Ramirez et al., 2017), *Pimelodella* (see Slobodian, 2017), *Pimelodus, Prochilodus, Serrasalmus, Schizodon,* and *Steindachnerina* (see Vari, 1991).

As to species-level taxa with such wide distribution, three categories exist: (1) well-studied ones that have been extensively revised and are demonstrably a single taxonomic entity, such as *Acestrorhynchus falcatus* (see González, 2015) and *Callichthys callichthys* (fig. 5D; see Lehmann and Reis, 2004); (2) species that have never been the object of detailed revisions but that nonetheless lack published evidence of comprising a complex of species, such as *Corydoras aeneus*, *Leporellus vittatus*, *Leporinus fasciatus*, *Pinirampus pirinampu*; and (3) taxa recognized or suggested as species complexes but that have not yet been disentangled, such as *Eigenmannia virescens* (L. Peixoto, personal commun.), *Erythrinus erythrinus* (Martins et al., 2012), *Hoplerythrinus unitaeniatus* (Giuliano-Caetano et al., 2001), *Hoplias malabaricus* (fig. 5B; see Dergam et al., 1998), *Leporinus friderici* (Silva-Santos et al., 2018), *Sternopygus macrurus* (Silva et al., 2008), and *Synbranchus marmoratus* (fig. 5C; see Torres et al., 2005).

Therefore, it is likely that this "pattern" may not actually be a congruent biogeographical pattern among species, but simply the result of a taxonomic artifact. More refined biogeographical patterns may be hidden under incomplete or deficient taxonomic definitions.

It is interesting that none of the migratory fishes with notably vast living ranges, such as *Brachyplatystoma* spp., Prochilodontidae spp., and Curimatidae spp. include species with such broad ranges as those listed above (see Barthem and Goulding, 2007; Barthem et al., 2017). This is evidence that even species with extreme dispersal abilities meet with effective ecological/geographical barriers that keep them from achieving such broad ranges as defined in this pattern.

Amazon Core

The name given to this pattern has no relation to the origin of its components, but simply alludes to the region of greatest fish diversity in South America. The Amazon Core pattern is formed by fish lineages typical of the Amazonian biota that may be found both in lowlands and highlands of the Amazon basin and in adjacent basins such as Guiana drainages, Parnaíba, Capim, Orinoco, and Essequibo (fig. 6A) and that are absent in coastal drainages of southeastern Brazil, São Francisco, and Paraná-Paraguay. It is interesting to note that there is no species or lineage of fishes that is widely distributed throughout the high and low Amazonian lands not also present in adjacent basins of the Amazon such as Orinoco, Essequibo, or Guiana drainages. This is evidence that the Amazon basin is not an area of endemism, but instead is a historically composite area.

Examples of the Amazon Core pattern are numerous and include supraspecific taxa such as Chilodontidae, Anostominae, genera *Argonectes* (see Langeani, 1996), *Boulengerella* (fig. 6B; see Vari, 1995), *Cichla* (see Kullander and Ferreira, 2006), *Jupiaba* (see Zanata, 1997; presence of the genus in Paraguay basin is hypothesized to be secondary according to Ribeiro et al., 2013), *Mastiglanis*, *Panaque* (see Lujan et al., 2010), and *Semaprochilodus* (see Castro and Vari, 2004). This pattern of distribution is also reflected in some individual species such as *Moenkhausia collettii* (fig. 6C), *Moenkhausia oligolepis* (fig. 6D) and *Potamotrygon orbignyi* (see Da Silva and De Carvalho, 2015).

South American Lowlands

As the name suggests, taxa following this pattern occupy only the lower altitudes of cis-Andean South America, not occurring in Guiana and Brazilian Shield regions except in lowermost sectors of some large rivers such as Tapajós, Trombetas, and Xingu. Almost invariably, species with this pattern of distributions occur in the main channel of the Amazon and the Rio Madeira but exact limits vary according to taxon. Eigenmann was the first author to recognize that the ichthyofaunistic composition was different between South American high- and lowlands and named part of the latter as the "Amazon Province": "East of the Cordilleras, and therefore east of the Magdalena basin, is found the most extensive and intricate fresh water system in the world. It forms a network of rivers practically uninterrupted, extending from the mouth of the Orinoco through the Casiquiare, Rio Branco, Rio Negro, Rio Madeira, Rio Guapore, Rio Paraguay, Parana and La Plata to Buenos Aires" (Eigenmann, 1909: 317).

Eigenmann (1909) correctly pointed out that the pattern extrapolates the hydrographic limits of the Amazon basin, and it is possible to list countless other examples of species that occur in the lowlands of the Amazon that are also present in other lowland drainages such as Orinoco, Paraná-Paraguay, Essequibo, and drainages east of the mouth of the Amazonas, from the Capim to the Mearim. Although this pattern is not exclusively Amazonian, the highland/lowland divide is the most widely discussed of all distributional patterns of Amazonian fishes (see Menezes, 1969, 1976; Kullander, 1986; Jégu, 1992a, 1992b; Lima and Ribeiro, 2011).

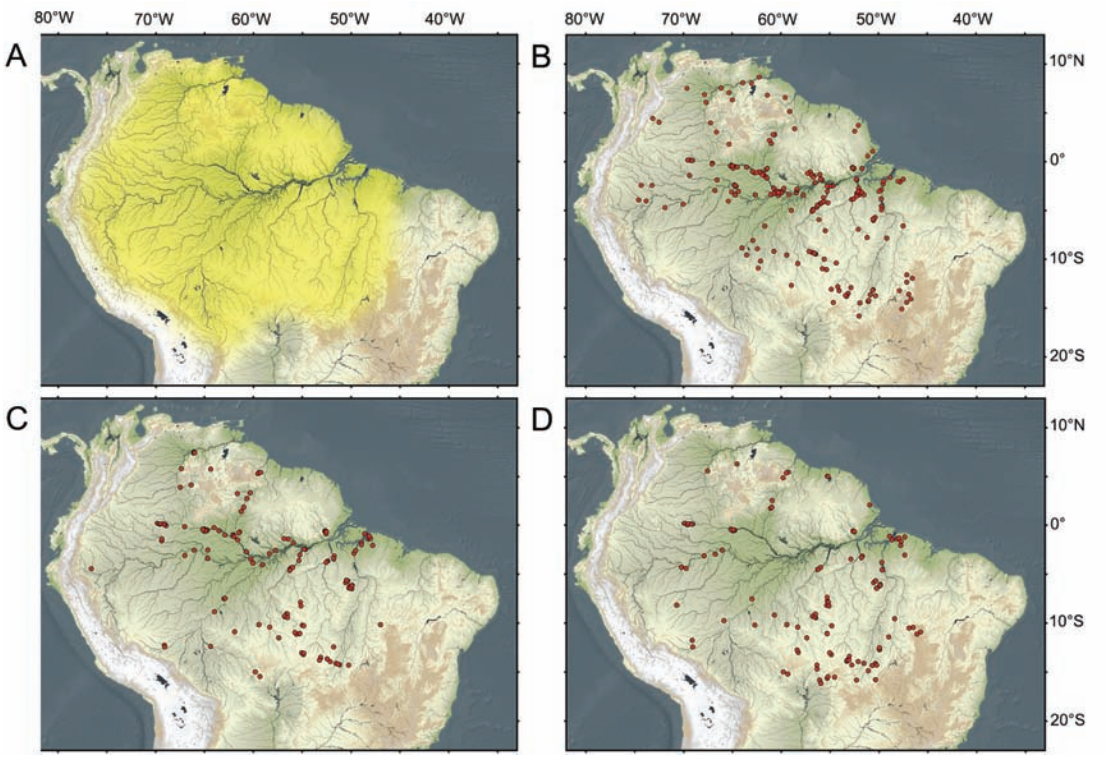


FIG. 6. Amazon Core. **A.** Yellow area delimits the distribution pattern. **B.** *Boullengerella* spp. (data from Vari (1995) with additional records from MZUSP). **C.** *Moenkhausia collettii* (records from MZUSP). **D.** *Moenkhausia oligolepis* (records from MZUSP).

Lima and Ribeiro (2011) underscored a clear dichotomy between two geomorphological domains in northern cis-Andean South America: lowlands and highlands. Besides differences in historical-geomorphological parameters, high- and lowland regions affect their associated biotas differently (Albert et al., 2011; Lima and Ribeiro, 2011). Lowland drainages are more susceptible to hydrogeological changes and are in general more dynamic than highland drainages. Lowland rivers tend to be more directly interconnected than rivers draining other geomorphological areas, due to the action of meanders, anastomoses, megafans and mouth-position changes during sea-level oscillations (Lundberg et al., 1988). All those factors are less intense or nonexistent in highland rivers, which are typically well fitted in valleys of exposed crystalline rock and do not undergo significant lateral movements (Lima and Ribeiro, 2011). Thus, lowland rivers undergo constant and much faster hydrogeographic changes and, as a consequence, congregate more taxa with broad distributions and more cases of sympatry than highland rivers. In addition, habitat stability provided by an enormous living space for lowland Amazonian fish species seems to be an important factor in decreasing the extinction rate of lineages (Lundberg et al., 1988; 2010), which in turn also results in increased diversity. Therefore, those are the factors that explain why most Amazonian fish species fit a South American lowland pattern.

There are spatial differences among distinct groups of lowland Amazonian fishes, with at least five different subpatterns as explained below. The examples and subpatterns recognized herein have

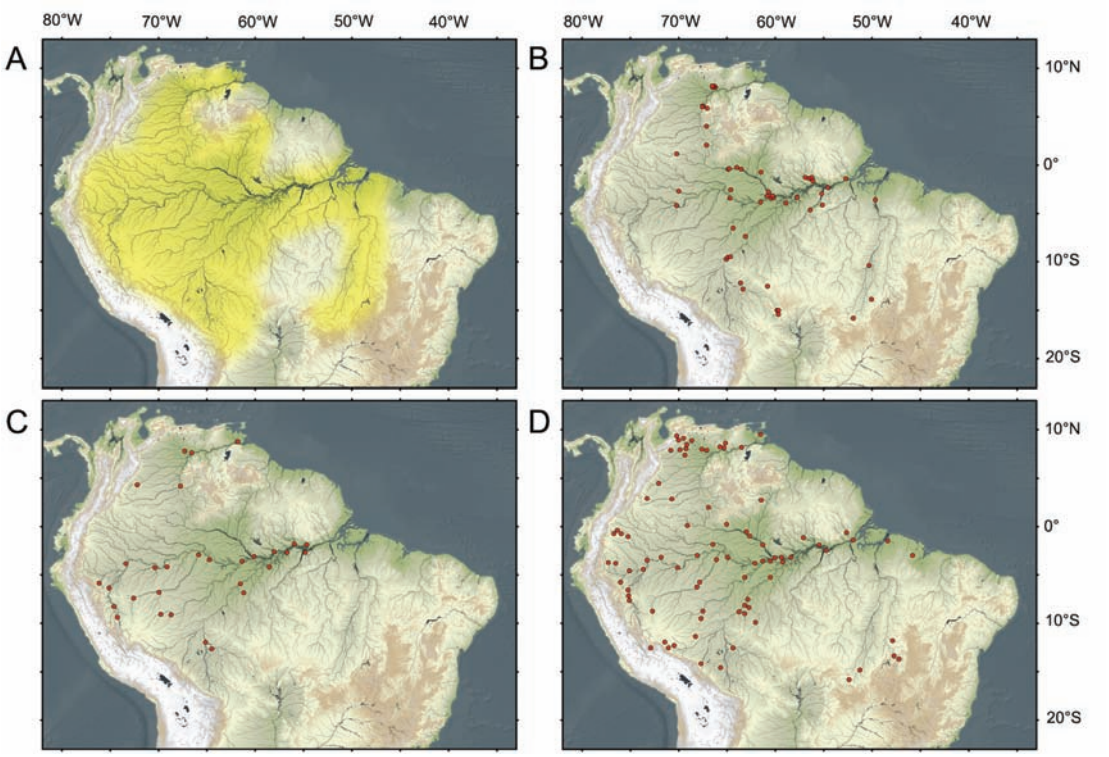


FIG. 7. Amazon and Orinoco Lowlands. **A.** Yellow area delimits the distribution pattern. **B.** *Moenkhausia lepidura* (data from Marinho and Langeani, 2016). **C.** *Potamorhina altamazonica* (data from Vari, 1984). **D.** *Vandellia cirrhosa* (M.P., unpublished data).

a direct relation with the complex geomorphological history of the Western Amazon.

Amazon and Orinoco Lowlands

Eigenmann (1909) delimited his Amazonian Province from a dispersionist perspective, where present-day connections among drainages provided the explanation for faunal sharing among basins. However, the correct interpretation for most of such massive ichthyofaunal sharing among different lowland South American basins is directly related to a complex historical context that began in the Upper Cretaceous, at least, with the formation of the Sub-Andean Foreland basin (Lundberg et al., 1998) and has little relation to present (and rather ineffective) physical connections (e.g., Casiquiare canal).

The sub-Andean Foreland is a series of retroarc depressions lying to the east of the Andean Cordilleras that served as the main drainage axis of South America throughout the Upper Cretaceous to the Paleogene (Cooper et al., 1995; DeCelles and Giles, 1996; Lundberg, 1998; DeCelles and Horton, 2003; Albert and Reis, 2011; Lima and Ribeiro, 2011; Wesselingh and Hoorn, 2011). For much of its existence, the Sub-Andean Foreland was drained mostly by the proto-Amazon-Orinoco basin (Lundberg et al., 1998), even though the latter has also drained other areas of the South American platform further east.

Both the pattern described here and the Amazon Province of Eigenmann (1909) match mostly (exclusive of the La Plata basin included in Eigenmann's province) the spatial limits of

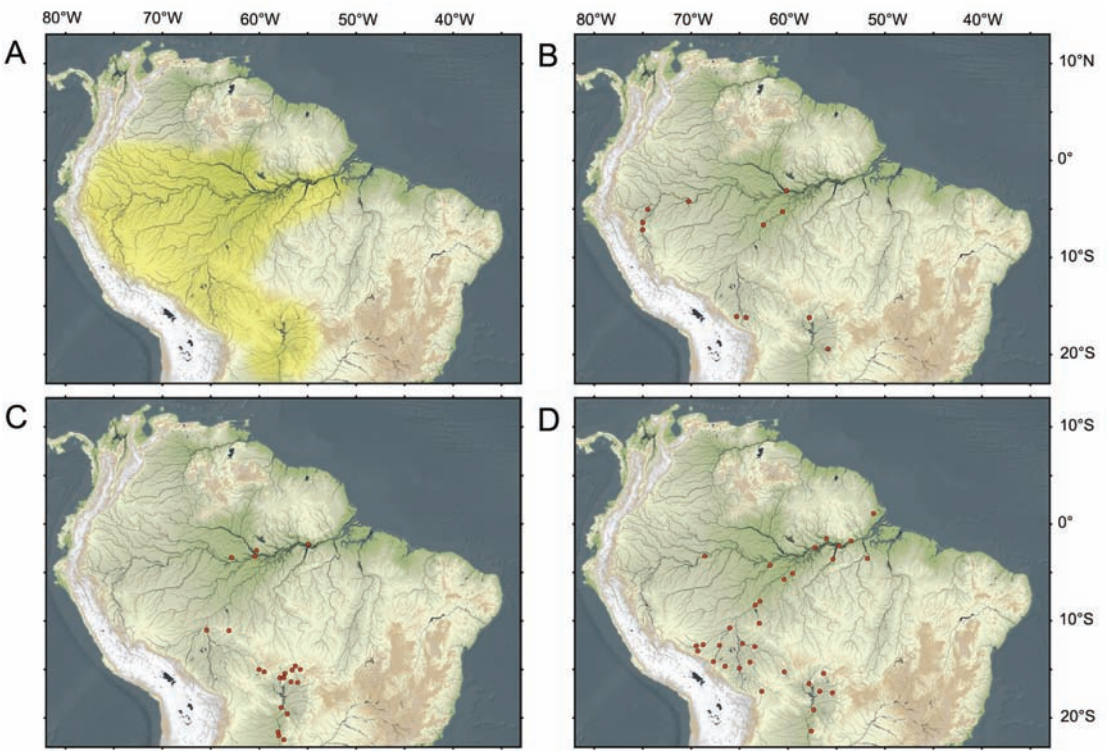


FIG. 8. Amazon and Paraguay Lowlands. **A.** Yellow area delimits the distribution pattern. **B.** *Epapterus dispilurus* (data from Vari and Ferraris, 1998). **C.** *Hemigrammus lunatus* (data from Ota et al., 2014). **D.** *Mesonauta festivus* (data from Kullander and Silvergrip, 1991, and Schindler, 2005).

the proto-Amazon-Orinoco, which was a continuous basin until its fragmentation in the late Miocene (ca. 10 Ma) as a result of the rise of the Vaupes Arch in eastern Colombia that separated the modern Orinoco and Amazon basins (Hoorn, 1994a; Cooper et al., 1995; Harris and Mix, 2002; Albert and Carvalho, 2011; but see Mora et al., 2010, for a more recent estimate). That barrier may have prevented lineages that diversified after its rise from increasing their range throughout all lowland regions and may also have caused the extinction of lineages in some of those basins. Those two factors may explain the absence of some typical Amazonian lowland forms in the Orinoco basin (see examples in Amazon-only Lowland). On the other hand, part of the faunal sharing between the Amazon and Orinoco may result from broad distributions before the modern separation between those basins, i.e., from the proto-Amazon-Orinoco. Still another hypothesis to explain the same pattern is megafan dynamics, geologically more recent (see Wilkinson et al., 2010). As will be discussed in the section Negro and Orinoco, the Canal Casiquiare does not seem to be a relevant dispersal route to explain the extensive list of taxa shared between the Amazon and Orinoco lowlands.

Some examples of exclusive taxon sharing between the Amazon and Orinoco lowlands are: *Acanthicus hystrix* (see Chamon, 2016), *Acestrorhynchus heterolepis* (see González, 2015), *Brachyhypopomus sullivani* (see Crampton et al., 2016), *Brycon amazonicus* (see Lima, 2017), *Boulengerella maculata* (see Vari, 1995), *Cetopsis coecutiens* (see Vari et al., 2005), *Cynodon gibbus*

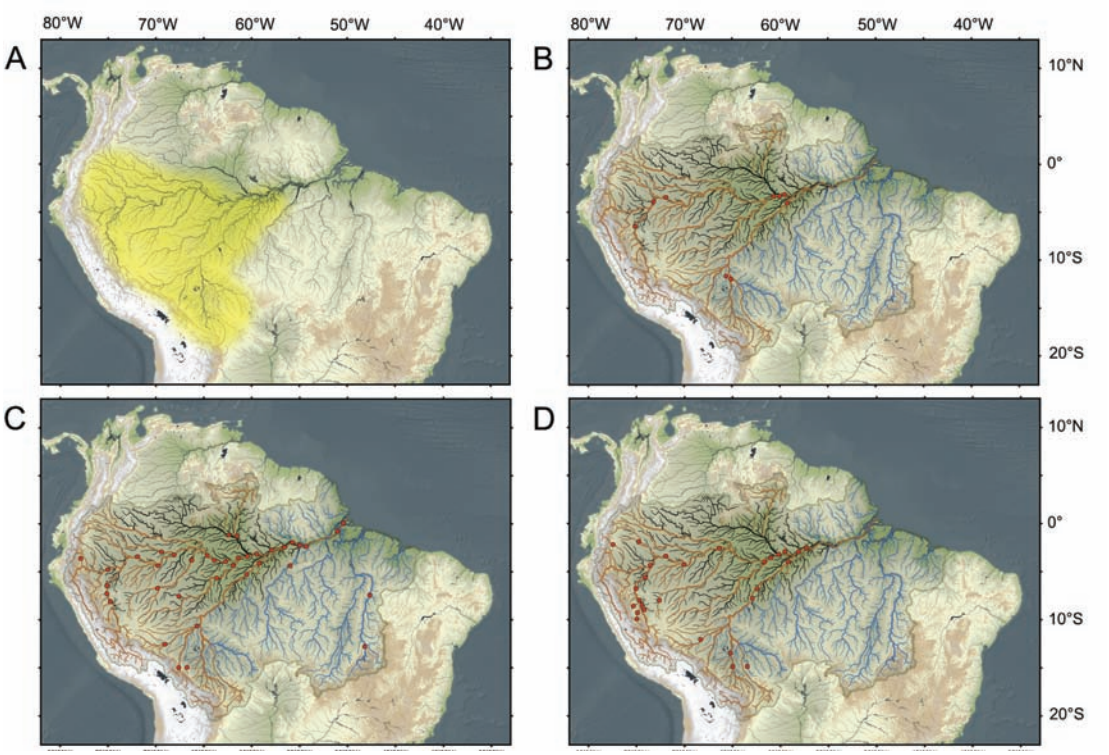


FIG. 9. Amazon-only Lowland. **A.** Yellow area delimits the distribution pattern. **B.** *Adontosternarchus balaenops* (data from Mago-Leccia et al., 1985). **C.** *Cetopsis candiru* (data from Vari et al., 2005). **D.** *Curimatella meyeri* (data from Vari, 1992a).

(see Toledo-Piza, 2000a), *Colossoma macropomum, Lasiancistrus schomburgkii* (see Armbruster, 2005), *Leptodoras paelongus* (see Sabaj Pérez, 2005), *Metynnis guaporensis* and *M. luna* (see Ota, 2015), *Moenkhausia comma, Moenkhausia lepidura* (fig. 7B, see Marinho and Langeani, 2016), *Mylossoma albiscopum* (see Mateussi, 2015), *Nemadoras cristinae* (see Sabaj Pérez et al., 2014), *Paragoniates alburnus* (see Quevedo, 2006), *Peckoltia bachi* (see Armbruster, 2008), *Potamorhina altamazonica* (fig. 7C, see Vari, 1984), *Sorubim elongatus* (see Littmann, 2007), *Trachydoras brevis*, *T. gepharti*, *T. microstomus* and *T. nattereri* (see Sabaj and Arce, 2017), *Vandellia cirrhosa* (fig. 7D), *Adontosternarchus* spp. (see Mago-Leccia et al., 1985), *Brachyrhamdia* spp. (see Slobodian, 2013), *Chalceus* spp. (see Zanata and Toledo-Piza, 2004), *Compsaraia* (see Bernt and Albert, 2017), *Hassar* spp. (see Birindelli et al., 2011), *Laemolyta* spp. (see Mautari and Menezes, 2006), *Liosomadoras* spp. (see Birindelli and Zuanon, 2012), *Microphilypnus* spp. (see Caires and Figueiredo, 2011), *Tenellus* spp. (sensu Birindelli, 2014; Sabaj Pérez et al., 2014), and *Sternarchogiton* spp. (see de Santana and Crampton, 2007).

Amazon and Paraguay Lowlands

There are many Amazonian Lowland fish lineages that also occur in the Paraná-Paraguay basin, which was not permanently connected to the proto-Amazon-Orinoco. The location of the watershed divide between the proto-Amazon-Orinoco River basin and the La Plata changed between the end of the Paleogene and the beginning of the Neogene (see Tagliacollo et al., 2015). Initially, it was the Chapare Buttress in

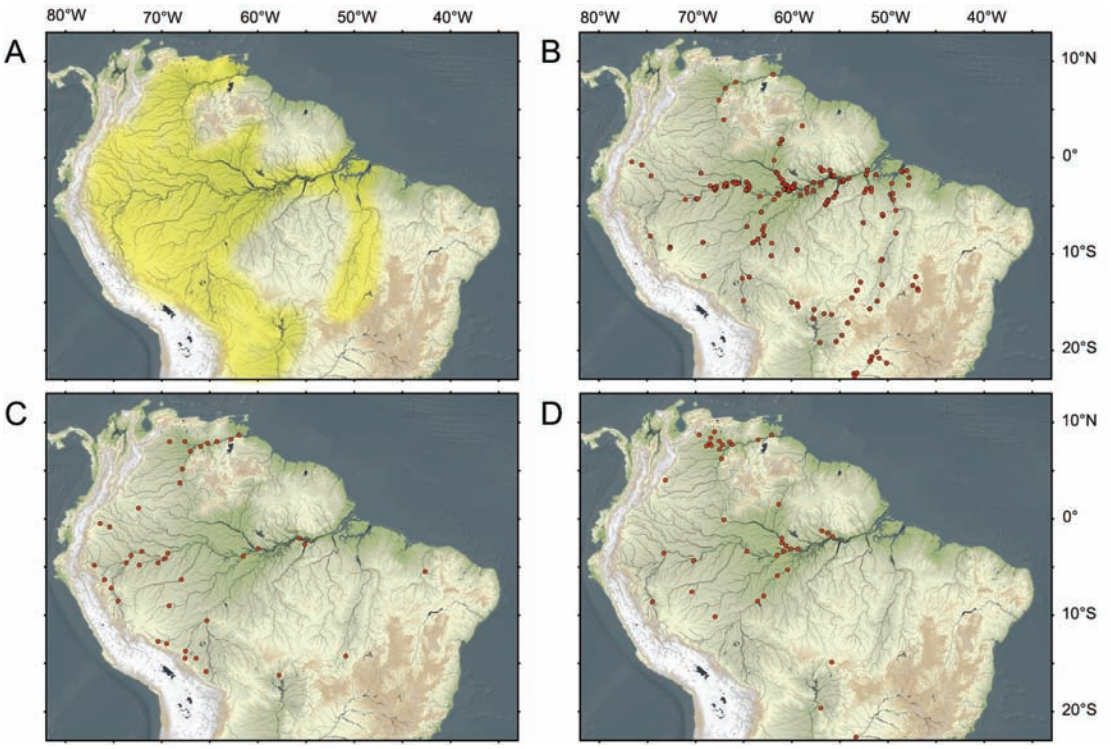


FIG. 10. Amazonas-Paraguay-Orinoco Lowland. **A.** Yellow area delimits the distribution pattern. **B.** *Rhaphiodon vulpinus* (data from Toledo-Piza, 2000a, with additional records from MZUSP). **C.** *Sorubim lima* (data from Littmann, 2007). **D.** *Hypophthalmus oremaculatus* (data from Littmann et al., 2015).

the Late Oligocene (ca. 30–20 Ma) (Lundberg, 1998) and subsequently the Michicola Arch, starting during the Late Miocene (ca. 11.8–10 Ma) in the area of modern eastern Bolivia (Lundberg et al., 1998; Montoya-Burgos, 2003; Albert and Carvalho, 2011; Carvalho and Albert, 2011a). Several events may have permitted biotic dispersal between the Amazon and Paraguay: upper Paraguay captures of proto-Amazonas-Orinoco headwaters (Lundberg et al., 1998), Amazon capture of upper Paraguay headwaters (Lundberg et al., 1998), river megafans involving the upper Río Mamoré and tributaries of the upper Río Paraguay (Wilkinson et al., 2006, 2010; Ota et al., 2014) and capture of upper Rio Paraguay into the upper Rio Guaporé (Ota et al., 2014). Because all possible connections between the Amazon and the Paraná-Paraguay happened as a result of separate events of different ages, it is very likely that many species shared between those basins, despite their congruent distributions, lack temporal congruence. They correspond instead to cases of pseudocongruence, sensu Donoghue and Moore (2003), and are not biogeographically homologous. Taxa shared between those basins include: *Acestrorhynchus abbreviatus* (see González, 2015), *Acestrorhynchus* gr. *lacustris* (see González, 2015), *Brachyhypopomus bombilla* (see Crampton et al., 2016), *Epapterus dispilurus* (see fig. 8B; Vari and Ferraris, 1998), *Hemigrammus lunatus* (see fig. 8C; Ota et al., 2014), *Mesonauta festivus* (see fig. 8D; Kullander and Silfvergrip, 1991; Schindler, 2005), *Moema* spp. (see Costa, 2004), and *Prionobrama* spp. (see Quevedo, 2006). A complete list of species shared exclu-

sively between the Madeira and the Paraguay is presented in Madeira and Paraguay.

Amazon-only Lowland

Whitewater Amazonian rivers have high sediment and nutrient loads and a neutral pH, draining a relatively young Andean range. Major whitewater tributaries include the Marañón, Purus, Madeira, Juruá, Putumayo, Japurá, and Napo rivers. The whole Rio Amazonas system exhibits whitewater, although it receives other water types from various tributaries. There are few investigations into the impact of such water type changes on the biogeography of Amazonian fishes. Vari (1988) suggested that some curimatids are restricted to whitewater rivers and that their distribution may be more closely linked to ecological rather than historical factors. While the pattern is correct in some cases, we also agree with Lima and Ribeiro (2011: 157) that "some ecological factors that clearly influence fish distribution patterns in northern cis-Andean South America, such as water typology, are, as mentioned previously, a consequence of geomorphological processes and, as such, possess a historical component." Thus, it is possible that lowland species restricted to the Amazon reached such distribution from different causes and histories, either because they diversified after separation of the Orinoco from the proto-Amazon-Orinoco basin or because they are whitewater dependent.

Evidence suggests that the interpretation of Vari (1988) may be correct for a set of species showing this pattern of distribution. Some of the exclusively Amazonian lowland species are absent in the Rio Tocantins basin, having their distributions limited to the region of the mouth of the Madeira. This may indicate an association with whitewater since tributaries with that type of water become practically nonexistent downstream of that part of the Amazon river. Some examples of the Amazon-only Lowland pattern are: *Adontosternarchus balaenops* (see fig. 9B; Mago-Leccia et al., 1985), *Agoniates anchovia, Aphanotorulus horridus* (see Ray and Armbruster, 2016), *Aphanotorulus unicolor* (see Ray and Armbruster, 2016), *Apionichthys nattereri* (see Ramos, 2003), *Brycon melanopterus* (see Lima, 2017), *Chalceus erythrurus* (see Zanata and Toledo-Piza, 2004), *Cetopsis candiru* (see fig. 9C; Vari et al., 2005;), *Cetopsis oliveirai* (see Vari et al., 2005), *Chaetobranchopsis orbicularis, Copella stigmasemion* (see Marinho and Menezes, 2017), *Crenicara punctulatum, Curimata aspera* (see Vari, 1989a), *C. kneri* (see Vari, 1989a), *Curimatella meyeri* (see fig. 9D; Vari, 1992b), *Cyphocharax spiluropsis* (see Vari, 1992b), *C. notatus* (see Vari, 1992b), *C. plumbeus* (see Vari, 1992b), *Denticetopsis seducta* (see Vari et al., 2005), *Hydrolycus scomberoides* (Toledo-Piza et al., 1999), *Hypostomus pyrineusi* (see Armbruster, 2003), *Leporinus jamesi* (see Garavello et al., 2014), *Protocheirodon pi* (see Vari et al., 2016), *Mylossoma aureum* (see Mateussi, 2015), *Nemadoras elongatus, N. hemipeltis, N. humeralis* (see Sabaj Pérez et al., 2014), *Potamorhina latior* (see Vari, 1984), *Prionobrama filigera* (see Quevedo, 2006), *Psectrogaster amazonica* (see Vari, 1989b), *Pseudobunocephalus amazonicus* (see Cardoso, 2008), *P. bifidus* (see Cardoso, 2008), *Scoloplax dicra* (see Schaefer et al., 1989), *Sorubim maniradii* (see Littmann, 2007), *Steindachnerina bimaculata* (see Vari, 1991), *S. leucisca* (see Vari, 1991), *Sternarchella calhamazon* (see Lundberg et al., 2013), *Trachydoras steindachneri* (see Sabaj and Arce, 2017), *Aphyolebias* spp. (see Costa, 2004), and *Chaetobranchopsis* spp.

The pattern of distribution described herein is repeatedly supported as biogeographically coherent in the analyses of Dagosta and de Pinna (2017).

Amazonas-Paraguay-Orinoco Lowland

This pattern is the least common one among lowland species in the Amazon basin. Most cases are also present in the Tocantins basin, but not in Guianan drainages. Some examples of this pattern are: *Abramites hypselonotus* (see Vari and Williams, 1987), *Curimatella dorsalis* (see Vari, 1992a), *Hypophthalmus oremaculatus* (see fig. 10D; Littmann et al., 2015), *Rhaphiodon vulpinus*

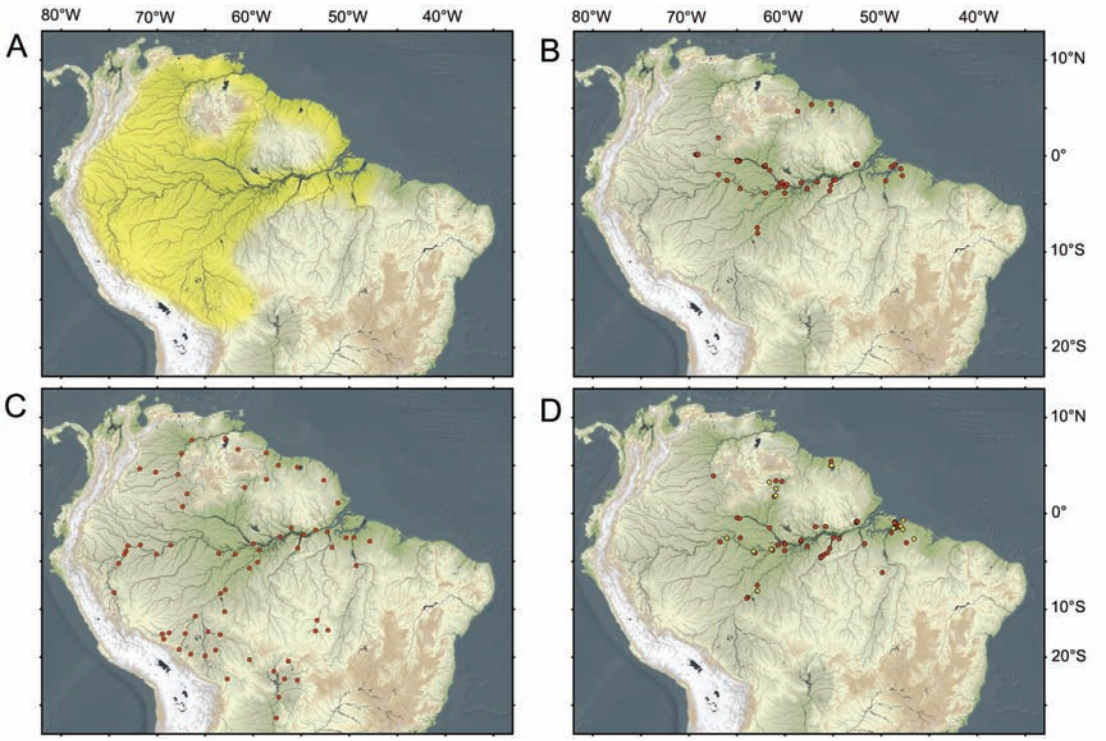


FIG. 11. Amazonas-Guiana-Orinoco Lowland. **A.** Yellow area delimits the distribution pattern. **B.** *Crenuchus* spp. (data from MZUSP). **C.** *Mesonauta* spp. (records from Kullander and Silfvergrip, 1991; Schindler, 2003). **D.** *Hemigrammus ocellifer* (red dots; records from MZUSP), *Hemigrammus unilineatus* (yellow dots; data from MZUSP).

(see fig. 10B; Toledo-Piza, 2000a), *Roeboides affinis* (see Lucena, 2007), *Sorubim lima* (see fig. 10C; Littmann, 2007), and *Mylossoma* spp. (see Mateussi, 2015). The Amazonas-Paraguay-Orinoco Lowland pattern comprises areas from the previously described Amazon and Orinoco Lowlands as well as the Amazon and Paraguay Lowlands, and thus the associated geological processes are the same as discussed in the respective headings.

Amazonas-Guiana-Orinoco Lowland

Species with this pattern of distribution are broadly distributed in the lowlands of the Rio Amazonas and, in some cases, also of the Orinoco and Essequibo, but they are also found in the lowlands of Guiana coastal drainages. The pattern differs from the Amazon Core pattern described above because it is restricted to lowland lineages. Some examples of this pattern here recognized are: Iguanodectinae, *Arapaima* spp., *Brachyplatystoma* spp., *Copella* spp. (see Marinho and Menezes, 2017), *Crenuchus* spp. (see fig. 11B; Campanario, 2002; Pires et al., 2016), *Electrophorus* spp., *Heros* spp., *Hypophthalmus* spp. (also in Paraguay basin, see Littmann et al., 2015), *Mesonauta* spp. (also in Paraguay basin, see fig. 11C; Kullander and Silfvergrip, 1991; Schindler, 2003), *Osteoglossum* spp., *Pachypops* spp. (see Casatti, 2002), *Ageneiosus dentatus* (see Ribeiro et al., 2017), *Brachyhypopomus beebei*, *Brachyhypopomus brevirostris* and *Brachyhypopomus regani* (see Crampton et al., 2016), *Caenotropus labyrinthicus* (see Vari et al., 1995), *Gnathocharax steindachneri*, *Hemigrammus unilineatus* (fig. 11D), *Hemigrammus ocellifer* (fig. 11D), and *Serrasalmus rhombeus.*

The geomorphological explanations associated with this pattern as the evolution of the sub-Andean Foreland region (discussed in Amazon and Orinoco Lowlands) and the advance of the freshwater plume associated with marine regressions (discussed in Guiana Mangrove Province), which allowed contact the regions of Amazonas-Orinoco Lowland and the coastal drainages of Guiana.

Other Cases of Amazonian Lowland Distribution

Fossils of Lowland Amazonian Lineages

Several Tertiary fossils belonging to typically lowland Amazonian taxa are present in regions currently lacking any Amazonian connection, such as Magdalena and Caribbean coastal rivers from the northern coast of Venezuela: *Arapaima*, *Brachyplatystoma*, *Colossoma*, *Doras*, *Hydrolycus*, and *Phractocephalus* (G. Ballen, personal communication; Lundberg et al., 1986, 1988, 2010; Lundberg, 1997, 2005; Sabaj Pérez et al., 2007). This demonstrates that such regions were in the past also part of some other distributional patterns described herein. If such fossils were not known, our understanding of the biogeographical history of the region would be severely incomplete or incorrect. Besides, the absence of extant representatives of the listed lineages in the Caribbean coastal rivers from northern coastal Venezuela and in Rio Magdalena basin is a clear demonstration of the dynamic nature of biogeographical phenomena, which change drastically over time and may bear little relationship to present-day physical barriers that determine the distribution of recent taxa.

Eastern Lowland Amazon

Some lowland distributional patterns comprise basins east of the mouth of the Rio Tocantins, beyond the eastern limit of the Amazon basin itself (i.e., Capim, Gurupi, Turiaçu, Mearim, Itapecuru, and Parnaíba). Interestingly, each of those basins has fewer and fewer Amazonian lineages as they get progressively farther from the mouth of the Amazon. Some of them are poorly sampled, mainly the Gurupi, Turiaçu, and Mearim, resulting in probably artifactual discontinuous distributions between neighboring basins and blurring details of the pattern. Species shared exclusively between the lower Amazon and above-cited eastern basins include: *Brachychalcinus parnaibae* (lower Tocantins and Parnaíba, see Reis, 1989), *Brachyhypopomus pinnicaudatus* (Amazon estuary, Capim, and Mearim, see Crampton et al., 2016), *Corydoras jullii* (lower Tocantins, Mearim, and Parnaíba, see Dagosta and Pinna, 2017); *Apistogramma caetei* (lower Tocantins, Capim, and Gurupi; see Dagosta and Pinna, 2017) and *Nannostomus nitidus* (Amazon estuary and Capim; see Dagosta and Pinna, 2017).

Most examples of Amazonian lineages that occur in drainages to the east of the Amazon basin are also widespread in lowland waters of the Amazon. Some examples are: *Anablepsoides urophthalmus* (Capim, Gurupi and Mearim, see Costa, 2006), *Brachyplatystoma* spp. (Capim, cf. Lundberg and Akama, 2005; Mearim and Parnaíba; see Ramos et al. Ramos et al., 2014), *Caenotropus labyrinthicus* (Capim, see Vari et al., 1995; Parnaíba; see Ramos et al., 2014), *Curimata* spp. (Itapecuru, see Barros et al., 2011; Parnaíba, see Ramos et al., 2014), *Cynodon gibbus* (Itapecuru, see Barros et al., 2011; Parnaíba, Toledo-Piza, 2000a), *Gymnocorymbus thayeri* (Gurupi, see Benine et al., 2015; Parnaíba, see Benine et al., 2015), *Jupiaba polylepis* (Parnaíba, see Ramos et al., 2014), *Poptella compressa* (Capim, Mearim, Parnaíba, and Turiaçu, see Reis, 1989; Itapecuru, see Barros et al., 2011), *Pseudoplatystoma punctifer* (Itapecuru, Barros et al., 2011; Parnaíba, see Buitrago-Suárez and Burr, 2007) and *Vandellia cirrhosa* (Capim and Turiaçu, fig. 7D).

Marine Derived Lineages

A lowland Amazonian pattern is also seen in typically marine lineages (peripheral division

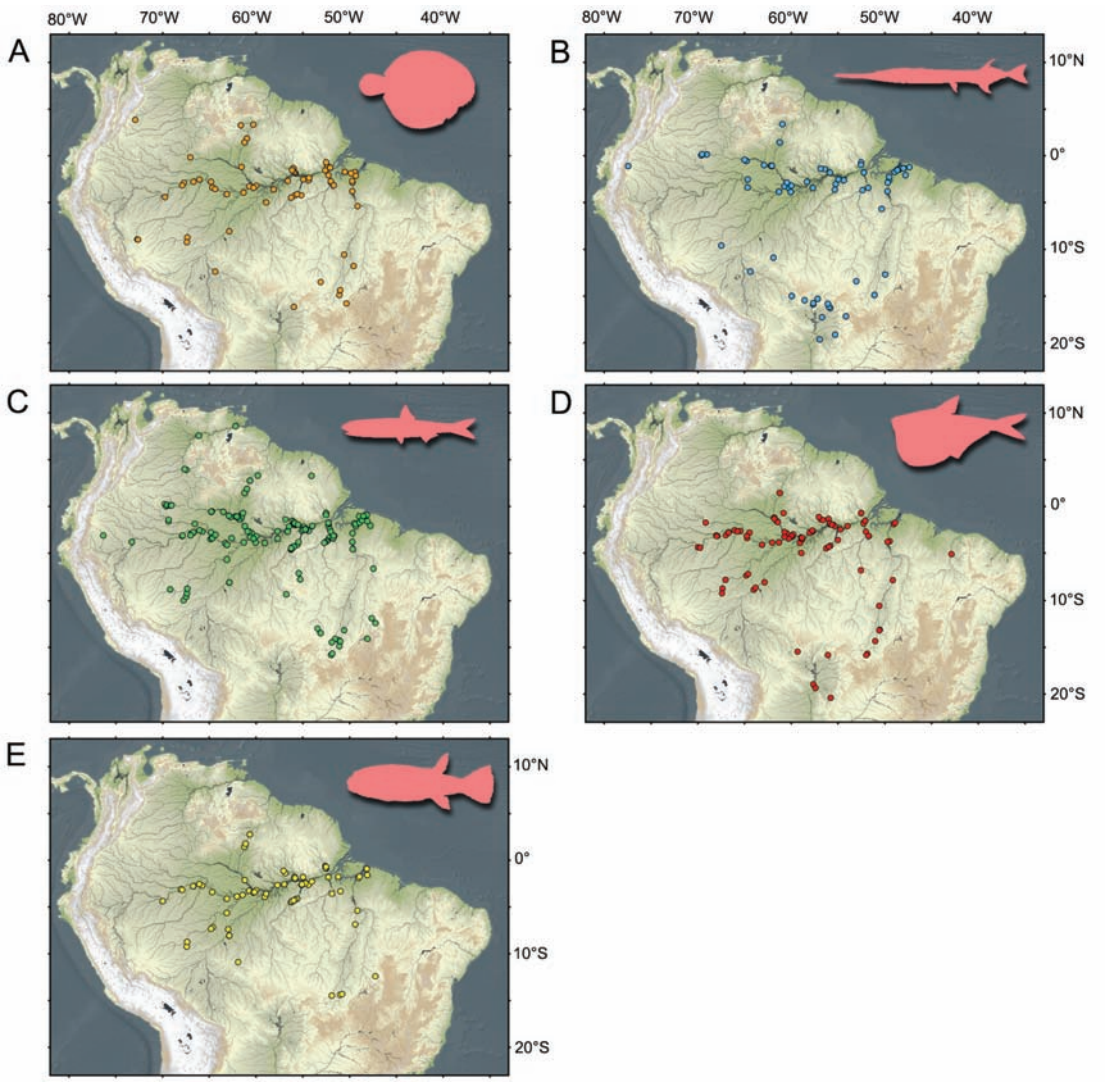


FIG. 12. Distribution of some typical marine lineages which invaded Amazonian waters. **A.** Achiridae. **B.** Belonidae. **C.** Engraulidae. **D.** Pristigasteridae. **E.** Tetraodontidae. Data from MZUSP. Map intended to represent general patterns of distribution into Amazonian and adjacent waters, not including marine records and from other basins.

sensu Myers (1938) that invaded Amazonian waters, such as Achiridae (fig. 12A), Batrachoididae, Belonidae (fig. 12B), Clupeidae, Engraulidae (fig. 12C), Gobiidae, Hemirhamphidae, Pristigasteridae (fig. 12D), and Tetraodontidae (fig. 12E) (see Bloom and Lovejoy, 2017, for further details).

Bloom and Lovejoy (2017) convincingly demonstrate that different marine lineages colonized South American rivers at different ages, influenced by separate events of marine transgression. According to those authors, different groups have biogeographical patterns consistent with invasions during the Oligocene, Eocene, or Miocene marine incursions. The Amazonian halfbeak is the only lineage younger than the Miocene to have invaded Amazonian freshwaters

less than a million years ago. These facts make it clear that the lowland Amazonian pattern of marine-derived lineages is pseudocongruent (sensu Donoghue and Moore, 2003).

None of the marine-derived lineages is found in the highest parts of Guianese and Brazilian shields (see figs. 12A–E). Such fact suggests that the invasion of peripheral groups in the Amazon occurred subsequently to the establishment of the ichthyofauna in those upland regions. The alternative hypothesis that such lineages went extinct in the higher regions of the shields has no evidential support, either paleontological or geomorphological.

Deep Channel Species

Another lowland Amazonian pattern is demonstrated by species restricted to the deep channel of large Amazonian rivers, mainly the Amazonas itself (e.g., *Sternarchella duccis*, see Evans et al., 2017; *Sternarchella rex*, see Evans et al., 2017; *Sternarchella sima*, see Evans et al., 2017; *Leptodoras juruensis*, see Sabaj Pérez, 2005; *Pariosternarchus amazonensis*, see Albert and Crampton, 2006). Benthic regions of many of these large rivers contain specialized communities, mostly composed of electric fishes. Some of those species are strictly associated with deepwater environments, though there are records also in flooded beaches. Crampton (2007) listed at least 64 species of the Gymnotiformes that inhabit deep waters in the Amazon. Because deepwater Amazonian samples are still few and have been mostly focused on large Amazonian rivers, it is possible that this apparent pattern is the result of a sampling artifact of species actually belonging to some of the other South American lowlands patterns.

Guiana Mangrove Province

This pattern comprises the lower portions of the Orinoco basin, the Guiana coastal drainages and the lower Amazon (fig. 13A). Its western limit for most taxa is usually the mouth of the Orinoco, but in some cases it extends to the small independent coastal Venezuelan drainages, such as with *Polycentrus schomburgkii* (see Coutinho and Wosiacki, 2014). The eastern limit of this province is usually the mouth of the Amazon, with some species occurring also in the lower sectors of the Rio Jari, Tocantins, and Xingu and some reaching even further east to the Brazilian State of Maranhão. This pattern was first recognized by Myers (1960), in describing distribution patterns in the subfamily Aspredininae, of Aspredinidae: "They [the Aspredininae] are fishes of the lowland, muddy coast of Guiana and Amazonia, where they occur in the sea, in brackish water, and in the estuaries and tidal portions of rivers. They do not seem to be found far inland anywhere, except in the lower Amazon, where they apparently occur in many (or all) parts of the vast, complicated delta area, where the tides or tidal bores (*pororoca*) are felt" (Myers, 1960: 133).

Myers (1960) describes the limits of the pattern as from the Orinoco delta in Venezuela into the Brazilian state Maranhão, and calls it the "Guyana Mangrove Province," a name adopted here. The same pattern was later independently described by Vari (1988: 355) on the basis of data from Curimatidae: "The Atlantic slopes of Guyana, Surinam and French Guiana and Amapá in Brazil are another area of endemism...." Vari (1988) notes that some species in that area also occur in the lower Amazon and in the Rio Tocantins, such as *Curimata cyprinoides*. This pattern is strongly corroborated as a historical unit in the analyses of Dagosta and de Pinna (2017).

Examples of Guiana Mangrove Province Pattern include: *Anableps* spp., *Anablepsoides urophthalmus* group (see Nielsen, 2016), *Aspredinichthys filamentosus* (see Myers, 1960), *Aspredinichthys tibicen* (see Myers, 1960), *Aspredo aspredo* (see Myers, 1960), *Copella arnoldi* (see Marinho and Menezes, 2017), *Curimata cyprinoides* (see fig. 13B; Vari, 1989a), *Cyphocharax helleri* (fig. 13C), *Hemigrammus rodway, Hemigrammus guyanensis, Nannostomus beckfordi, Piabucus dentatus, Platystacus cotylephorus* (see Myers, 1960), *Poecilia*

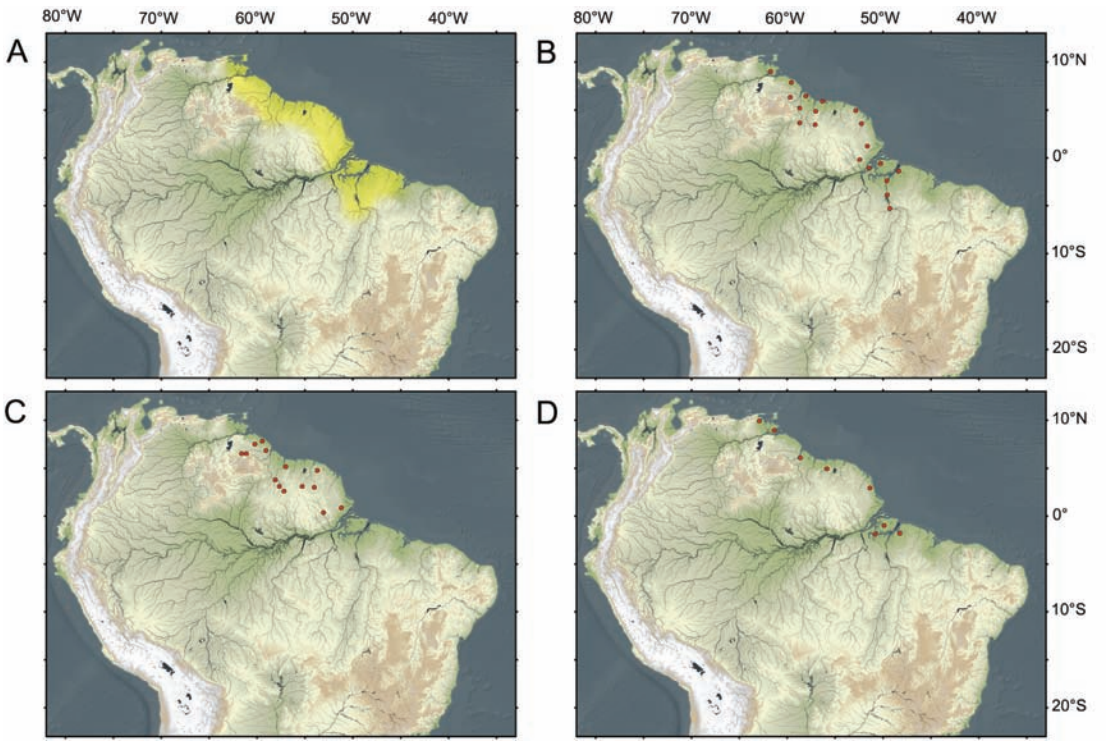


FIG. 13. Guiana Mangrove Province. **A.** Yellow area delimits the distribution pattern. **B.** *Curimata cyprinoides* (data from Vari, 1989a). **C.** *Cyphocharax helleri* (data from Vari, 1992b) with additional records from MZUSP). **D.** *Polycentrus schomburgkii* (see data from Coutinho and Wosiacki, 2014).

parae, P. picta, Poptella longipinnis, Polycentrus schomburgkii (see fig. 13D; Coutinho and Wosiacki, 2014), *Pristella maxillaris, Pseudauchenipterus nodosus, Rhinosardina amazonica* (see Whitehead, 1985), and *Tomeurus gracilis* (see Myers, 1960).

It seems unlikely that nonrheophilic species such as those listed above have the pattern of distribution they do as a result of sequential stream capture events or that they represent relictual distributions of ancient and more widely distributed populations. Instead, their distribution pattern seems to be strongly correlated with events of marine transgression and regression.

An immense freshwater plume is formed by the discharge of the Amazon in the Atlantic (Goulding et al., 2003; Rocha, 2003). Such volume of freshwater floats above the heavier saltwater and spreads northwestward carried by the southern equatorial current (Jégu and Keith, 1999; Albert et al., 2006), resulting in turbid waters and largely unconsolidated substrates between the mouths of the Amazon and Orinoco (Curtin, 1986; Rocha, 2003). The effect of that plume varies seasonally and according to changes in sea level over time (Rocha, 2003). The first authors to propose the effect of the Amazonian plume on freshwater fish distribution were Jegú and Keith (1999). In their model, the plume serves as a corridor permitting the advance of species from the lower Amazon toward Guiana coastal drainages, thus explaining the common elements between those regions (see the distribution of *Brachyhypopomus pinnicaudatus* in Crampton et al., 2016, for another example). It is also likely that events of marine transgression and regression have altered the hydrogeological dynamics of the region affected by the plume, isolating or uniting different coastal drainages.

It is not yet known whether the matching distributions of strictly freshwater (as listed above) and marine-tolerant species (e.g., *Aspredinichthys filamentosus*, *Aspredinichthys tibicen, Aspredo aspredo, Platystacus cotylephorus, Pseudauchenipterus nodosus, Rhinosardina amazonica*, and *Stictorhinus potamius*) are congruent or pseudocongruent (sensu Donoghue and Moore, 2003). Myers (1960) notes that *Tomeurus* and *Anableps* have the same distribution pattern as Aspredininae, even though the two former taxa are not as tolerant to saltwater.

The salt-tolerant species are restricted to lower portions of rivers, close to their mouths. Their tolerance to marine water may have allowed their range expansions without the need of transgression-regression events. Population phylogeographical studies may bring light to this question, by comparing divergence times between populations in the lower Amazon and those in the Guiana coastal drainages, both in strictly freshwater and marine-tolerant lineages. Regardless of salt-tolerance considerations, it is expected that the biogeographical pattern described above is at most ~11 Ma, i.e., as old as the age of the present connection between the Amazonas and the Atlantic (Hoorn, 1994a, 1994b, 1996; Potter, 1997) and also coinciding with the corresponding Andean uplift at that latitude (Hoorn et al., 1995).

Eastern Amazon (East of the Purus Arch)

Structural arches like the Purus Arch are basement structures located under sediments of different ages that are not exposed superficially in the eastern Amazon (Rossetti et al., 2005). As a consequence, such structures cannot have acted as biogeographical barriers from the end of the Miocene to the present (Campbell et al., 2006; Lima and Ribeiro, 2011). The Purus Arch is thought to have acted as a crucial barrier until the late Miocene, dividing the Eastern and Western Amazon (Figueiredo et al., 2009; Hoorn et al., 2017), although its role in the formation of the Amazon and its influence in the distribution of the biota remain controversial (see Wesselingh and Salo, 2006). Why and how two previously disconnected aquatic systems, the eastern and the western Amazon, merged is still unclear (Hoorn, 1994a, 1994b; Wesselingh, 2006; Figueiredo et al., 2009; Hoorn et al., 2017). Such uncertainty impedes proper understanding of the consequences of the event for the biogeography of Amazonian fishes. It is certain nonetheless that several lineages of fishes display distributions spatially congruent with a western/eastern Amazon divide, with their limit coinciding exactly with the Purus Arch.

The Eastern Amazon pattern may represent the distribution of species historically associated with the region lying east to the Purus Arch, for the most part cratonic and draining clear or black waters (Harris and Mix, 2002; Wesselingh and Hoorn, 2011). This pattern comprises the drainages of the Rio Negro, Orinoco, Essequibo, and Amazonian versants of the Brazilian and Guianan shields (fig. 14A). Some examples of this pattern are: *Aphanotorulus emarginatus* (see fig. 14B; Ray and Armbruster, 2016), *Baryancistrus* spp., *Bivibranchia fowleri*, *Colomesus tocantinensis* (see Ruiz, 2015), *Caquetaia spectabilis*, *Geophagus altifrons*, *Gnathodolus bidens*, *Hydrolycus tatauaia* (see Toledo-Piza et al., 1999), *Leporinus brunneus* (see Lima and Ribeiro, 2011), *Pachyurus junki* (fig. 14C) and *Synaptolaemus latofasciatus* (see fig. 14D; Britski et al., 2011). There are at least two examples of lineages distributed also in parts of the Atlantic drainages in the Guiana Shield, *Brycon* gr. *pesu* (see Planquette et al., 1996) and *Hoplias curupira* (see Oyakawa and Mattox, 2009).

Water type and drainage relief are not enough to explain why the Rio Negro basin, for example, shares such a great number of lineages with highland drainages, despite the Negro´s small shield coverage. The existence of so many shared taxa exclusively between the Negro and shield rivers indicates a shared history.

The East of the Purus Arch pattern may be directly related to the hydrogeological dynamics of the Amazon basin during the Miocene.

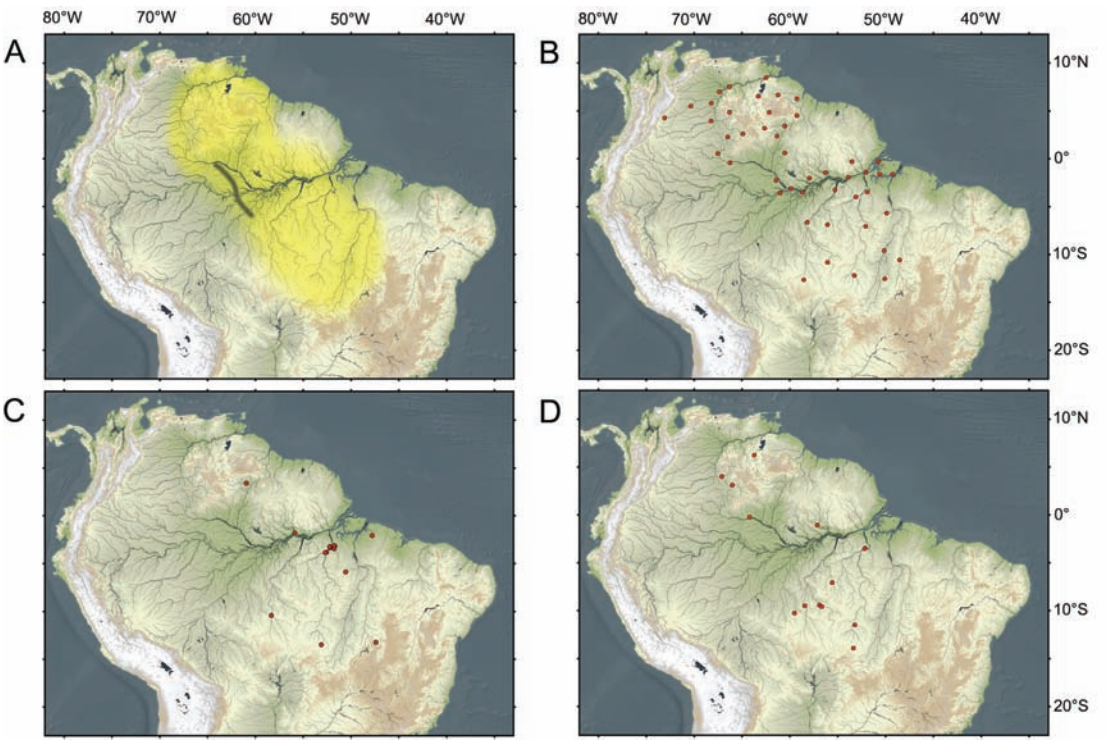


FIG. 14. Eastern Amazon. **A.** Yellow area delimits the distribution pattern (wavy line represents position of Purus Arch). **B.** *Aphanothorolus emarginatus* (data from Ray and Armbruster, 2016). **C.** *Pachyurus junki* (records from MZUSP). **D.** *Synaptolaemus latofasciatus* (data from Britski et al., 2011).

The uplift of the central and north portions of the Andes created an overload on the South American plate that caused a lithospheric flexion, which in turn opened space for the formation of a sub-Andean Foreland basin (Sacek, 2014). Between ~24 and 16 Ma, this foreland basin received sediments from rivers draining west of the Purus Arch and east of the Andes, carrying them northward toward the Caribbean (Crampton, 2011; Sacek, 2014). At least since the Eocene, the Purus Arch (fig. 14A) was a divide between the basins draining east (eastern Amazon basin) and those draining westward (Lundberg et al., 1998; Costa et al., 2001; Crampton, 2011; Lujan and Armbruster, 2011). At that time, the eastern Amazon basin was formed by rivers draining shield areas, sediment poor and probably clear- or blackwater (Harris and Mix, 2002; Wesselingh and Hoorn, 2011). That phase was followed by the formation of an immense lacustrine system known as Pebas (~16 to 10.5 Ma), probably separated from the eastern Amazon system also by the Purus Arch (Figueiredo et al., 2009; Crampton, 2011; Sacek, 2014). The accumulation of sediments, mostly Andean in origin, in the foreland basin and the continuing Andean uplift (Crampton, 2011; Lima and Ribeiro, 2011) resulted in a breaching of the Purus Arch and a connection between that drainage and the eastern Amazon, forming a transcontinental basin and starting the Andean sedimentary deposition in the Brazilian equatorial margin, which extends to the present (Figueiredo et al., 2009; Sacek, 2014).

Andean sediments in large amounts in the mouth of the Amazon begin approximately by 7 Ma, indicating that the west-east water divide

was effective until that date (Hoorn, 1994b; Figueiredo et al., 2009; Crampton, 2011; for more recent estimates, see Roddaz et al., 2005; Rossetti et al., 2005; Campbell et al., 2006; Espurt et al., 2007). As a consequence, the pattern East of the Purus Arch pattern described herein is at least between 2.6 and 7 Ma, but in reality, it is probably far older because that time interval marks only the last instant before lineages south and north of the Amazonian tributaries were separated. A biogeographical pattern similar to the one described here was mentioned by both Eigenmann (1909) and Lima and Ribeiro (2011) under the highlands designation. However, for both authors relief is the decisive factor explaining the spatial distribution of fish species, rather than the past influence of the Purus Arch as proposed here. It is important to note that the Purus Arch today has no influence as a barrier on species distributions. Its role is relevant as a past barrier, when it formed the water divide between eastern and western Amazon. The reason why most lineages on each side of the divide do not expand their distributions is a mystery, perhaps related to historical-ecological factors independent of any present-day physical remains of the Purus Arch. The fish lineages east of the Purus arch are mostly ecologically restricted to fast-flowing and sediment-poor tributaries, not entering the main Amazonian channel. The westward dispersion of those species was once limited by the Purus Arch when it was an effective barrier. The demise of the Purus Arch as a significant barrier is synchronous with the formation of the main channel of the Amazon. Slightly upstream of the mouth of the Rio Negro, approximately at the site of the ancient Purus Arch barrier, the main channel of the Amazon becomes significantly deeper (Geritana and Paiva, 2013). That factor, in combination with the simultaneous massive input of acidic waters from the Rio Negro, probably makes the region impervious to many taxa narrowly adapted to conditions of western Amazon waters.

This region then started acting as an ecological barrier to those species west of the former Purus Arch, effectively replacing it. This provides an example that distributional patterns may have been determined by past barriers having no relation to current geographical boundaries, but nonetheless linked by a causal chain of different yet overlapping barriers. Of course, the number of fish species showing this pattern may seem small in view of the potential importance of the Purus Arch. However, the congruent distributions of unrelated lineages despite the absence of any apparent physical or ecological barriers cannot be ignored and may represent the last remnants of a common biogeographical history.

Amazon-Core Uplands

This pattern comprises species endemic to basins that drain the Brazilian and Guiana shields both in Atlantic and Amazonian versants. As mentioned above in South American Lowlands, Eigenmann (1909) was the first author to identify faunistic differences between South American lowlands and highlands. That author also inferred ages for those regions, implying that they have distinct biogeographical histories. Eigenmann (1909: 318) correctly proposes that both the Guianan and Brazilian shields are older than lowland regions: "The parts that first arose out of the sea and became populated with freshwater fishes were probably two land areas. The one embraces the highlands of Guiana and Northern Brazil, the other the highlands of Brazil east of the Araguay and south of the falls of the Tapajos." The pattern described here is very similar to the one described by Eigenmann (1909) and differs from the Eastern Amazon pattern in excluding predominantly lowland drainages such as the Rio Negro and by including Guiana coastal basins (fig. 15A). Fishes displaying the Amazon-Core Highlands pattern are in general rheophilic: *Acnodon* spp., *Anostomus ternetzi* (see Lima and Ribeiro, 2011), *Cetopsidium* spp. (also in upper Rio Negro, see fig. 15B; Vari

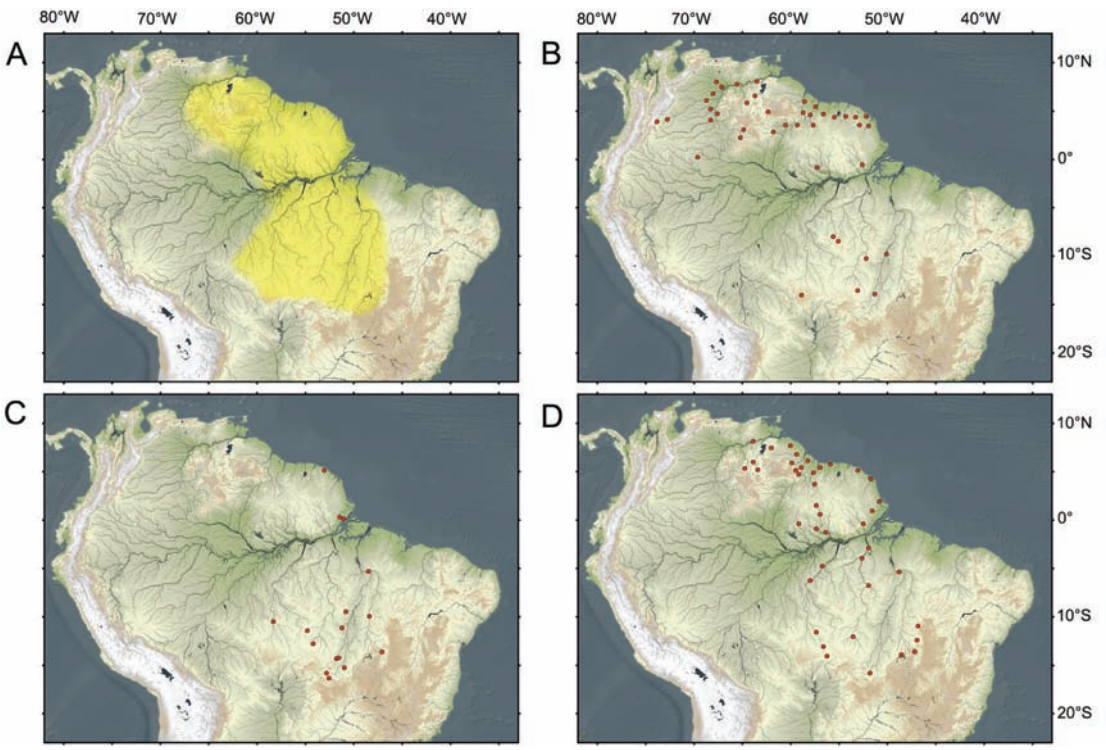


FIG. 15. Amazon-core uplands. **A.** Yellow area delimits the distribution pattern. (B) *Cetopsidium* spp. (data from Vari et al., 2005, with additional records from MZUSP and LIRP). **C.** *Hemigrammus ora* (data from Jerep et al., 2011, with additional records from MZUSP). **D.** *Hoplias aimara* (data from Mattox et al., 2006).

et al., 2005), *Centromochlus schultzi*, *Hemibrycon surinamensis* (see Bertaco and Malabarba, 2010), *Hemigrammus ora* (see fig. 15C; Jerep et al., 2011), *Hoplias aimara* (see fig. 15D; Mattox et al., 2006), *Jupiaba essequibensis*, *J.* gr. *meunieri* and *J. polylepis*, *Krobia* spp., *Leporinus maculatus*, *Leporinus* gr. *granti*, *Moenkhausia grandisquamis*, *Mylesinus* spp., *Petulanos* spp., *Retroculus* spp., *Roeboexodon guianensis* (see Lima and Ribeiro, 2011), and *Tometes* spp. (see Andrade, 2013; Andrade et al., 2016). The five categories described below are sub-patterns within the larger Highland Amazon Core pattern.

Amazonian Uplands

This pattern comprises exclusively Amazonian rivers draining both shields, Brazilian and Guianan (fig. 16A). Exact limits of this pattern are yet somewhat vague because known examples are species or lineages that occur in very narrow sectors of rivers, forming fragmented distributions based on sparse records. Species following this pattern are typically rheophilic and include: *Archolaemus luciae* (see Vari et al., 2012), *Baryancistrus niveatus, Cetopsidium orientale* (see Vari et al., 2005), *Doras higuchii* (see Sabaj Pérez et al., 2008), *Hypomasticus julii*, *Leporinus britskii* (see Feitosa et al., 2011), *Leporinus microphysus* (see Birindelli and Britski, 2013), *Leporinus pachycheilus* (also in Rio Araguari basin, see Santos et al., 1996), *Metynnis anisurus* (also in upper Rio Paraná basin, see Ota, 2015), *Moenkhausia celibela* (see Marinho and Langeani, 2010), *Mylesinus schomburgkii*, *Sartor* spp. (fig. 16B), and *Teleocichla* spp. (fig. 16C) and *Tocantinsia piresi* (fig. 16D).

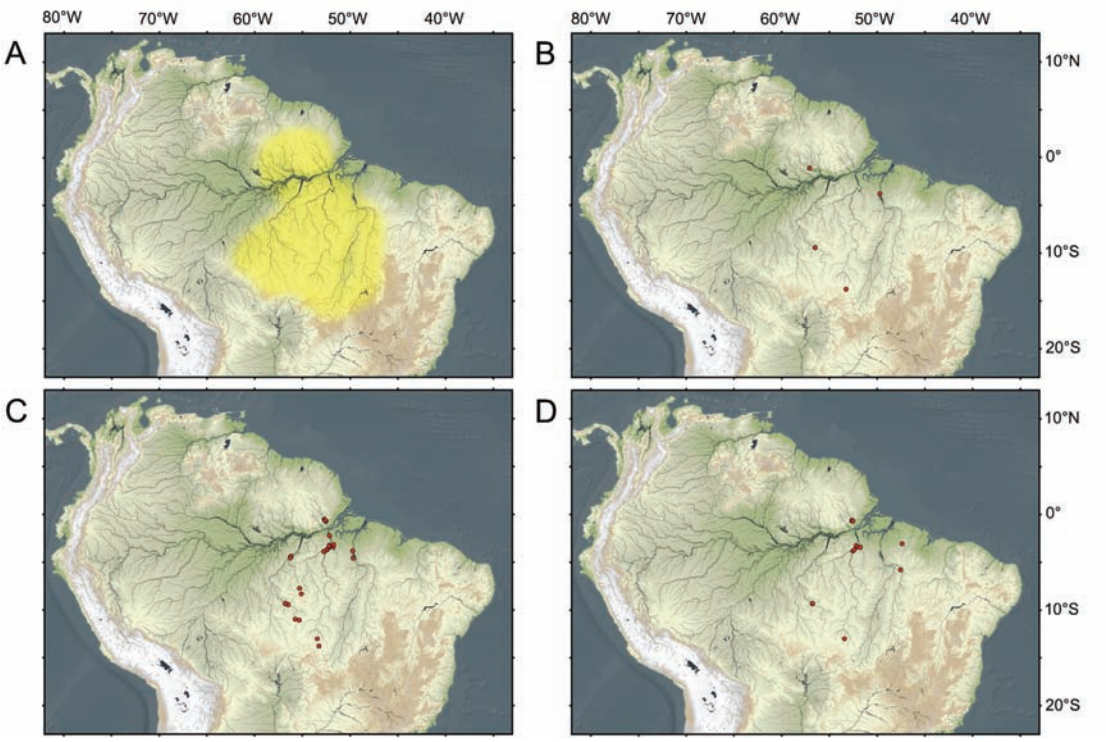


FIG. 16. Amazonian uplands. **A.** Yellow area delimits the distribution pattern. **B.** *Sartor* spp. (records from MZUSP). **C.** *Teleocichla* spp. (records from MZUSP). **D.** *Tocantinsia piresi* (records from MZUSP).

Guiana Shield (Atlantic and Amazonian Versants)

This pattern includes lineages shared exclusively between Amazonian and Atlantic versants of rivers draining the Guiana Shield (fig. 17A). It possibly results from ichthyofaunistic exchange caused by stream capture events (see Cardoso and Montoya-Burgos, 2009). The pattern as a whole is probably not temporally congruent, but instead formed by independent events that caused faunistic mixing in the region, a common phenomenon between neighboring headwaters in shield rivers. Nijssen (1970) was the first author to propose that the headwater regions of north and south Guianan rivers might serve as a corridor for fish distribution. Subsequent authors, such as Cardoso and Montoya-Burgos (2009) and Lujan and Armbruster (2011), proposed additional examples of this pattern and its role as a faunistic connection between the Guianas and the Amazon.

There are few examples of this pattern, in part as a result of the yet incipient knowledge on the fish fauna of upper reaches of Amazonian versants of the Guiana Shield. Some examples include: *Corydoras baderi* (Paru do Oeste and Maroni, see Nijssen and Isbrücker, 1980), *Cteniloricaria* spp. (Paru do Oeste, Maroni, Suriname, Corentyne, and Essequibo, see Covain et al., 2012), *Hypomasticus megalepis* (Trombetas, Uatumã and Guianese rivers, see Mol et al., 2012; J. Birindelli, personal commun.), *Lithoxus* spp. (Fisch-Muller, 2003), *Microglanis secundus* (Trombetas and Saramacca, see Ruiz and Shibatta, 2010), *Parodon guyanensis* (Paru do Oeste, Maroni, Suriname, Corentyne, and Essequibo), *Parotocinclus halbothi* (Trombetas and Maroni,

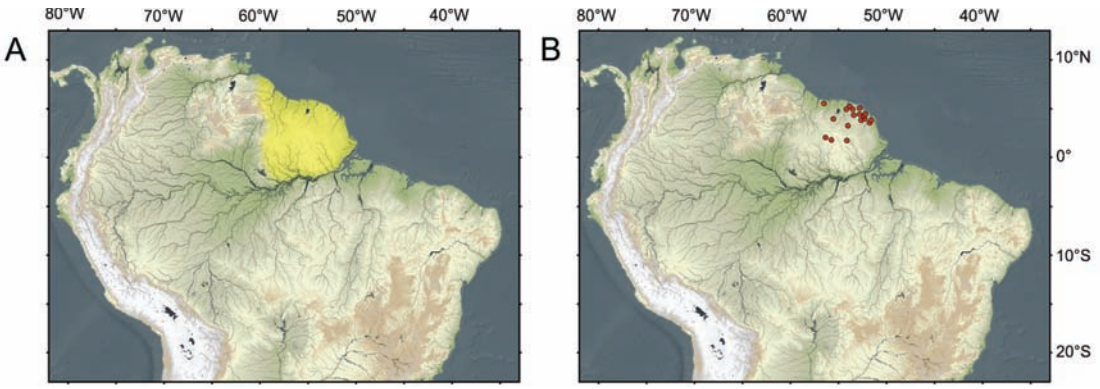


FIG. 17. Guiana Shield (Atlantic and Amazonian versants). **A.** Yellow area delimits the distribution pattern. **B.** *Pseudancistrus brevispinis* (data fom Cardoso and Montoya-Burgos, 2009).

see Lehmann et al., 2014), *Pseudancistrus brevispinis* (Paru do Oeste, Jari and Guianese rivers, see fig. 17B; Cardoso and Montoya-Burgos, 2009), *Stenolicmus ix* (Curuá and Maroni, see Wosiacki et al., 2011; G. Dutra, personal commun.), and the clade *Hypomasticus despaxi* + *H. lineomaculatus* (Paru, Jari, and Maroni, see Birindelli et al., 2013).

Longitudinal Shield Correspondence among Amazonian Shield Versants

This pattern is characterized by lineages that are present in both shields and follow a longitudinal correspondence among basins (fig. 18A). The pattern is expressed as lineages shared among the westernmost and easternmost parts of the cratonic region. In the western basins (Trombetas and Tapajós) examples include *Sartor* gr. *elongatus* (fig. 18B), *Bryconexodon* spp. (fig. 18C), *Laimosemion dibaphus* (see Costa, 2006) and *Hypoptopoma elongatum* (see Aquino and Schaefer, 2010). In the eastern basins, as the Jari, Xingu, and Tocantins, some examples are *Acnodon* spp., *Anablepsoides urophthalmus* (see Costa, 2006), *Bivibranchia velox* (Fig 18D), *Hypomasticus multimaculatus* (see Birindelli et al., 2016), and *Sternarchella sima* (Ivanyisky III and Albert, 2014). The first author to recognize this pattern was Jégu (1992a), on the basis of some shared characiform taxa.

Brazilian Shield

This distribution pattern is defined by lineages occurring exclusively in the area corresponding to Amazon-draining Brazilian Shield rivers, formed by the Tocantins, Xingu, Tapajós basins, and some shield tributaries of the Rio Madeira (fig. 19A). Those are all highland rivers draining the ancient crystalline basement of the Brazilian Shield and most of them possess major rapids and/or waterfalls (Innocencio, 1989; Lima and Ribeiro, 2011). This pattern is recovered, in part, in the analyses of Dagosta and de Pinna (2017).

Known examples of this pattern are typically rheophilic species. Probably the ecological conditions prevailing in lowland Amazonian environments act as barriers to their distributions (Géry, 1969). Géry (1962) proposes the circumferential pattern (lateral interbasin migration) for some species, suggesting that this pattern (encircling lowland South American lands, but never entering them) results from the ecological limitations of taxa restricted to fast-flowing rivers with high oxygen levels. This seems to be the explanation for the distributions of many Amazonian taxa restricted to the Brazilian Shield.

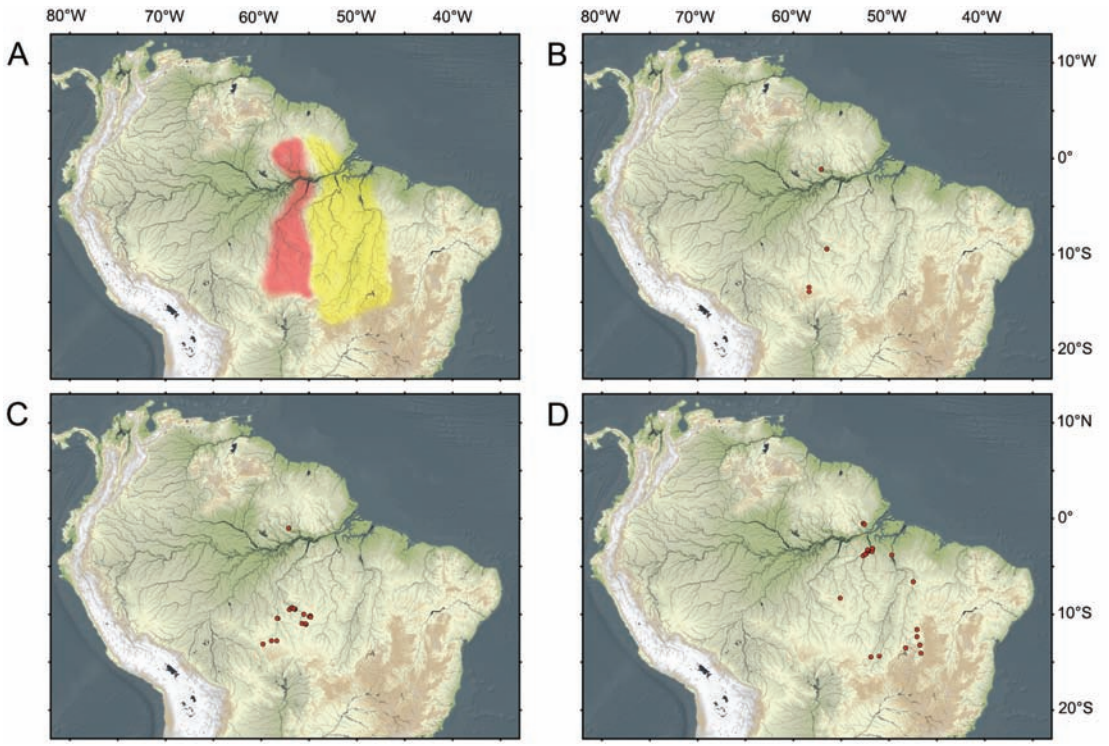


FIG. 18. Longitudinal correspondence among Amazonian Shield versants. **A.** Red area delimits the distribution pattern of western basins (Trombetas and Tapajós); yellow area the western basins pattern (Jari, Xingu, and Tocantins). **B.** *Sartor* gr. *elongatus* (records from MZUSP). **C.** *Bryconexodon* spp. (records from MZUSP). **D.** *Bivibranchia velox* (records from MZUSP).

Géry (1962) used a dispersalist paradigm to explain lateral movements between basins. The author, however, actually adopted the notion of biotic dispersal (sensu Platnick and Nelson, 1978) rather than a true dispersalist framework. In that sense, his argument was essentially correct, because elements shared between neighboring basins have been associated with rearrangements of the hydrographic network (e.g., stream capture) resulting from neotectonic activity (see Lima and Ribeiro, 2011; Ribeiro et al., 2013). This interpretation of Géry´s hypothesis is clear in the following passage, where he proposes that the suppression of a barrier, even if momentarily, would have allowed the spread of a lineage: "Characids show a tendency to invade laterally their adjacent basins (by means of these temporary or permanent connections)" (Géry, 1962: 68). Another instance that demonstrates that the author did not follow pure dispersalism is: "The speciation (or subspeciation) occurred after the passage of the forms from one basin to another in 'circumferential' progression, rather than after having propagated along each great river" (Géry, 1962: 78).

Examples of this pattern include: *Acestrocephalus nigrofasciatus* (Xingu, Juruena, and Jamanxim), *Acestrocephalus stigmatus* (Tocantins, Xingu, and Tapajós), *Ancistrus ranunculus* (Tocantins, Xingu, and Tapajós), *Baryancistrus longipinnis* (Tocantins, Xingu, and Tapajós), *Bryconadenos tanaothoros* (Xingu, Teles Pires, and Juruena), *Caiapobrycon* spp. (Tocantins, Xingu, and Tapajós, fig. 19B), *Crenicichla acutirostris* (Xingu, Tapajós, and shield portions of the Madeira; see Ploeg, 1991), *Jupiaba apenima*

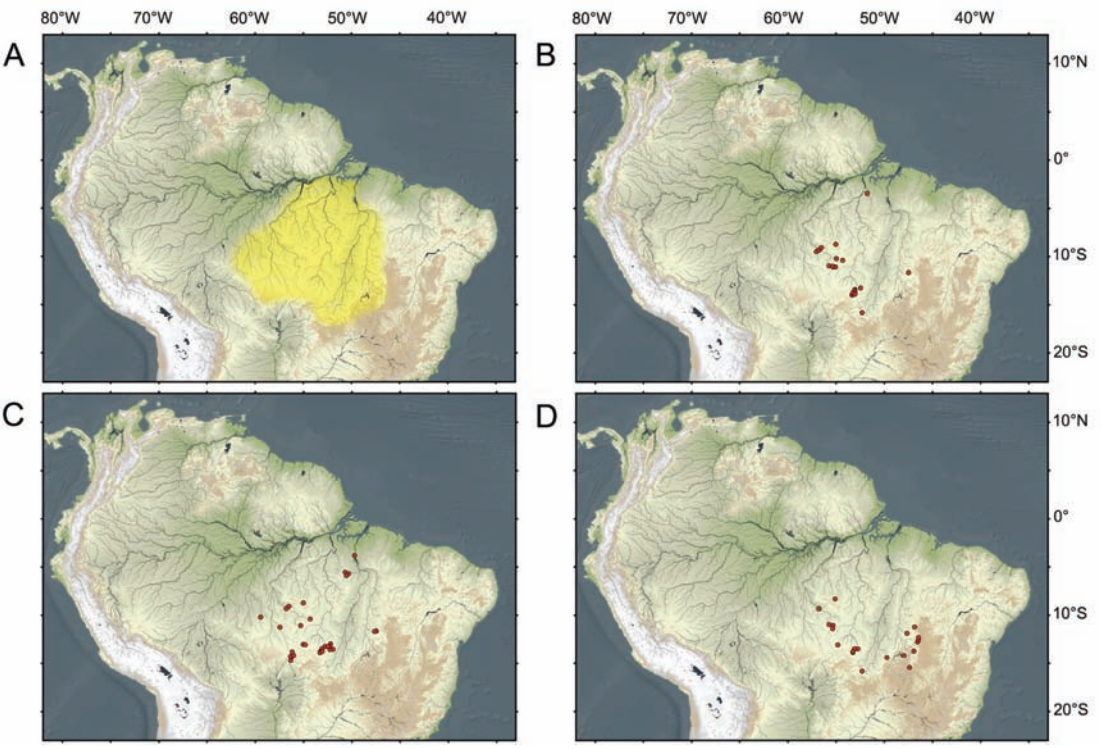


FIG. 19. Brazilian Shield. **A.** Yellow area delimits the distribution pattern. **B.** *Caiapobrycon* spp. (records from MZUSP). **C.** *Jupiaba apenima* (records from MZUSP). **D.** *Moenkhausia* gr. *pankilopteryx/pirauba* (records from MZUSP).

(Tocantins, Xingu, and Tapajós, fig. 19C), *Jupiaba iasy* (Xingu, Tapajós, and shield portions of the Madeira), *Leporinus tristriatus* (Tocantins, Xingu, and Tapajós; see Birindelli and Britski, 2013), *Moenkhausia* gr. *pankilopteryx/pirauba* (Tocantins, Xingu, Tapajós, and shield tributaries of the Rio Madeira, fig. 19D), *Panaque armbrusteri* (Tocantins, Xingu, and Tapajós; see Lujan et al., 2010), *Petulanos intermedius* (Xingu, Tapajós, and shield portions of the Madeira), *Thayeria boehlkei* (Tocantins, Xingu and, Tapajós; see Lima and Ribeiro, 2011), *Rhinopetitia* spp. (Tocantins, Xingu, and Tapajós) and *Scobinancistrus* spp. (Tocantins, Xingu, and Tapajós). Some species occur both in the Amazonian sector of the Brazilian Shield and in the headwaters of the Rio Paraguay, a pattern discussed by Ribeiro et al. (2013) for *Jupiaba acanthogaster*. Additional examples include: *Hyphessobrycon* gr. *vilmae*, *Moenkhausia* gr. *phaeonota*, *Moenkhausia* gr. *lopesi*, and the genus *Utiaritichthys*.

Barring the unlikely possibility that all the taxa listed above became extinct in the Guiana Shield, then their age of diversification is maximally ~12–10 Ma. (Dobson et al., 2001; Figueiredo et al., 2009; Mora et al., 2010), when the Amazon river began depositing sediments on the Brazilian equatorial margin (Sacek, 2014), thus impeding rheophilic lineages from spreading their ranges to Guiana Shield regions.

Extreme Shield: Chapada dos Parecis

The Chapada dos Parecis is an elevated geomorphological formation located in the western portion of the Brazilian Shield, in central South

America. It includes headwaters of various drainages, such as Rio Machado, Rio Guaporé, Paraguay, and mostly the Juruena. Many papers have proposed the Chapada dos Parecis as an area of endemism (Carvalho and Bertaco, 2006; Britski and Lima, 2007; Lima et al., 2007; Pastana and Dagosta, 2014; Ohara and Lima, 2015a). Yet, there are other noteworthy characteristics that must be noted for the ichthyofauna in that region. The portion of the Chapada dos Parecis drained (mostly) by the Juruena is the extreme case of the pattern expected for shield composition, with an extremely high level of endemism (Carvalho and Bertaco, 2006; Britski and Lima, 2007). Cases of closely related lineages coexisting are rare, diversity is low and there are very few taxa broadly distributed in the rest of the Amazon.

East of the Rio Juruena in the Chapada dos Parecis, through the basins of the Rio Arinos, Rio Teles Pires, Rio Xingu, and Rio Tocantins-Araguaia, there is a trend toward reduction in endemism and an increase in the number of sympatric congeneric species, in species diversity, and in widely distributed species. The Rio Juruena, like other basins in that formation, contains no members of typically marine lineages (Myers' 1938 peripheral division) (figs. 12A–E) and very few lowland Amazonian components. For example, *Arapaima*, *Osteoglossum*, *Colossoma*, and large pimelodids (*Brachyplatystoma*, see Barthem et al., 2017; *Phractocephalus*) are all absent. More relevant still is the fact that dozens of lineages present in other Brazilian Shield drainages are absent in the Rio Juruena at Chapada dos Parecis, such as *Acestrocephalus acutus*, *Acestrorhynchus micropelis* (see González, 2015), *Anostomoides passionis*, *Archolaemus luciae* (see Vari et al., 2012), *Argonectes robertsi*, *Astyanax multidens* (see Marinho and Birindelli, 2013), *Bivibranchia notata*, *Bryconadenos tanaothoros* (present only in Rio Arinos basin), *Cyphocharax stilbolepis*, *Electrophorus electricus*, *Harttia dissidens*, *Hemigrammus levis*, *H. ora* (see Jerep et al., 2011), *Hyphessobrycon loweae* + *H. pegeouti* clade (see Ingenito et al., 2013), *H. moniliger*, *H. vilmae*, *H. pulchripinnis*, *Jupiaba apenima*, *J. anteroides*, *J. apenima*, *J. iasy*, *J. paranatinga*, *J. polylepis*, *Laetacara araguaiae*, *Leporinus britskii*, *L. julii*, *L. microphysus*, *Leptodoras oyakawai*, *Leptorhamdia schultzi*, *Macropsobrycon xinguensis*, *Megadontognathus kaitukaensis*, *Moenkhausia celibela*, *M. collettii*, *Otocinclus hasemani*, *Panaque armbrusteri*, *Petulanos intermedius*, *Pseudanos* spp. (see Birindelli et al., 2012), *Pimelodus tetramerus*, *Rhinopetitia* spp., *Roeboexodon guyanensis*, *Serrasalmus rhombeus*, *Sorubim trigonocephalus*, *Spectracanthicus murinus*, *Teleocichla* spp. (fig. 16C), and *Tocantinsia piresi* (fig. 16D).

Among all basins of the Amazonian versant of the Brazilian Shield, the portion of the Rio Juruena draining the Chapada dos Parecis has the most rapids and waterfalls. Britski and Lima (2007) suggest this factor as the reason for the high endemism in the region. We add that the same factor may serve as barriers in the opposite direction and explains also the absence of many lineages common in other Brazilian Shield basins. Thus, the abundance of rapids and waterfalls provides a threefold explanation: for the lack of specific lineages, for reduced sympatry and for decreased species richness. The Rio Iriri and Rio Teles Pires draining the Serra do Cachimbo and the upper Tocantins at the Chapada dos Veadeiros are two additional regions that can be classified as Extreme Shield. Both of them also drain the ancient crystalline basement of the Brazilian Shield and are dotted with rapids and waterfalls. Thus, they show pronounced faunal regionalization and are very poor in diversity when compared to other sectors of the Tapajós, Xingu e Tocantins basins.

Exclusive Faunal Sharing between Neighboring Basins

The sharing of exclusive faunal elements between two basins does not imply that such lineages are broadly distributed in both basins. This fact is evident in the eastern Amazon basins. Geographical distributions tend to be more restricted in highlands (see Albert and Crampton, 2005; Ribeiro, 2006; Maxime and

Albert, 2009), where species have smaller ranges and most cases of broader distributions involve species or clades shared with neighboring basins. Such faunal similarities are in most instances associated with river captures caused by reactivation of faults or headward erosion (Ribeiro, 2006; Lima, 2017). Below we list and discuss stereotypical cases of exclusive faunal sharing between neighboring basins in the Amazon:

Tapajós and Paraguay

The fish fauna shared between Tapajós and Paraguay basins has been repeatedly recognized in the literature (see Lima et al., 2007; Carvalho and Albert, 2011a; Ribeiro et al., 2013) and some examples include: *Aequidens rondoni* (see Lima et al., 2007), *Leporinus octomaculatus* (fig. 20, see Birindelli and Britski, 2009), and *Crenicichla ploegi*. Additional examples are: *Moenkhausia cosmops* (also present in Guaporé basin, fig. 20), *Moenkhausia* gr. *lopesi* (also present in Rio Araguaia basin) and the genus *Utiaritichthys* (also present in shield tributaries of the Madeira).

Tapajós and Xingu

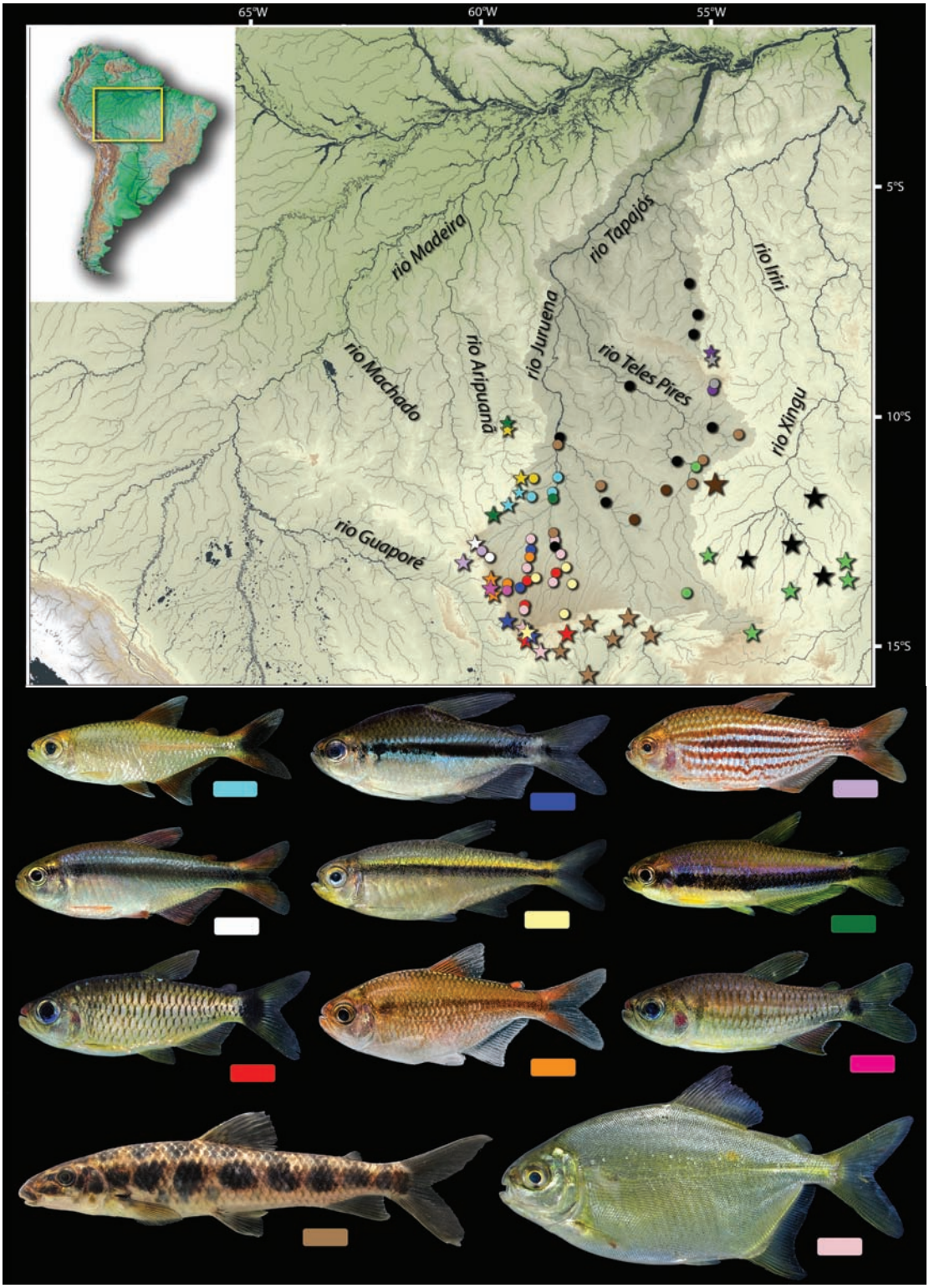
Taxa shared between the Tapajós and Xingu basins are: *Anostomoides passionis*, *Archolaemus janeae* (see Vari et al., 2012), *Bryconadenos* spp. (fig. 20, see Menezes et al., 2009), *Cichla mirianae* (fig. 20, see Kullander and Ferreira, 2006), *Creagrutus cracentis* (see Dagosta and Pastana, 2014), *Hopliancistrus* spp., *Hyphessobrycon cachimbensis* (fig. 20), *Hyphessobrycon cyanotaenia* (fig. 20, see Dagosta et al., 2016; also in Guaporé basin), *Leptodoras oyakawai* (see Birindelli et al., 2008), *Lebiasina melanoguttata* (fig. 20), *Leporinus villasboasorum* (see Burns et al., 2017), *Leptorhamdia schultzi*, *Megadontognathus kaitukaensis* (see Campos-da-Paz, 1999), *Peckoltia feldbergae*, *Pyrrhulina marilynae* (fig. 20, see Netto-Ferreira and Marinho, 2013), *Retroculus xinguensis*, *Spatuloricaria tuira* (see Fichberg et al., 2014), and *Teleocichla prionogenys*.

Tapajós and Madeira

Different subdrainages that compose the Rio Madeira basin variably share exclusive ichthyofaunistic elements with the Rio Tapajós. Most shared elements are between the Aripuanã and the Juruena, such as *Ancistrus parecis* (see De Oliveira et al., 2016), *Hemigrammus silimoni* (fig. 20, see Dagosta, 2016), *Inpaichthys* spp. (fig. 20, see Dagosta, 2016), *Moenkhausia levidorsa* (fig. 20, see Dagosta, 2016), the clade *Crenicichla chicha* + *C. hemera* (see Varella et al., 2012), and genus *Utiaritichthys* (also present in upper Paraguay, fig. 20). There are also at least four examples of exclusive sharing between the Rio Juruena and the Rio Guaporé basin (*Hyphessobrycon psittacus*, fig. 20; *Hyphessobrycon hexastichos*, fig. 20; *Moenkhausia rubra*, fig. 20; *Moenkhausia uirapuru*, fig. 20) and three with the Rio Machado: *Bryconops piracolina* and *Hyphessobrycon melanostichos* (see Dagosta, 2016), and *Corydoras hephaestus*. Some taxa have wider distributions in the Tapajós and the Madeira, but are shared exclusively between the two basins (*Steindachnerina fasciata*, see Netto-Ferreira and Vari, 2011).

Most importantly, virtually all cases listed above involve shield tributaries of the Madeira, and no known case of a species or clade that occurs in the main channel of the Madeira that is also shared exclusively with the Rio Tapajós basin.

Recently, Tencatt and Ohara (2016) proposed a distribution pattern of Amazonian fishes delimited by interfluvial region between the Rio Madeira and the Rio Tapajós. Their arguments on fish species distributed in both systems are the same examples previously listed in Dagosta (2016) as evidence for the historical connections between the Tapajós and Madeira basins. However, Tencatt and Ohara claim the existence of congruence between the distribution of freshwater fishes and terrestrial organisms (birds, butterflies, primates and vascular plants) in the region between the Rio Madeira and the Rio Tapajós. However, freshwater fish distributions are limited by land tracts (save rare exceptions, e.g., Géry, 1964; 1969, for the Rio Amazonas and Goulding et al., 1988, for the Rio



Negro). The ichthyofaunal sharing between the Madeira and Tapajós results from a recent and localized history, influenced by geomorphological processes that resulted in stream capture events across the region that separates those basins and which caused biotic dispersal. Stream capture is a phenomenon entirely independent of the geographical isolation of terrestrial animals as inferred by Tencatt and Ohara. The rivers Tapajós and Madeira are the obvious barriers for the distribution of other terrestrial animals (e.g., birds, see Fernandes et al., 2014; Oppenheimer and Silveira, 2009). Species of fish are limited by waterfalls and land tracts. The patterns result from entirely different biogeographical phenomena and we believe there is no spatial or temporal homology between such apparent coincidences.

Xingu and Paraguay

There are few examples of species or clades shared exclusively between these basins: *Hypoptopoma inexspectatum* (see Aquino and Schaefer, 2010), *Steindachnerina brevipinna* (see Netto-Ferreira and Vari, 2011), and the clade *Characidium nupelia* + *C. xavante* (see da Graça et al., 2008).

Xingu and Tocantins

Examples of this pattern here recognized are: *Acnodon normani*, *Aspidoras poecilus* (see Nijssen and Isbrücker, 1976), *Astyanax argyrimarginatus*, *Bivibranchia velox* (see Langeani, 1996), *Centromochlus simplex*, *Creagrutus britskii* (see Meza-Vargas, 2015), *Creagrutus mucipu* (see Meza-Vargas, 2015), *Hemiancistrus spilomma*, *Hemiodus tocantinensis*, *Hyphessobrycon loweae* (see Ingenito et al., 2013), *Hypostomus faveolus* (see Zawadzki et al., 2008), *Laemolyta fernandezi*, *Melanocharacidium auroradiatum*, *Mesonauta acora* (see Kullander and Silfvergrip, 1991), *Moenkhausia loweae* (see Marinho, 2009), *Moenkhausia pyrophthalma*, *Rhynchodoras xingui* (see Birindelli et al., 2007), *Semaprochilodus brama* (see Castro and Vari, 2004), *Sternopygus xingu*, and *Tometes ancylorhynchus* (see Andrade et al., 2016).

Tocantins and Paraguay

Only *Cyphocharax vanderi* (see Claro-García and Shibatta, 2013), *Hasemania hanseni*, and *Knodus chapadae* (see Ferreira, 2007) are exclusively shared between these basins.

Tocantins and São Francisco

Although examples of taxa shared exclusively between the Tocantins and São Francisco are few, they have received considerable attention in the literature (see Lima and Caires, 2011; Dagosta et al., 2014). The cases recognized here are: *Cichlasoma sanctifranciscense* (see Lima and Caires, 2011; Dagosta et al., 2014), *Hyphessobrycon diastatos* (see Dagosta et al., 2014), and some lineages of *Cynolebias* and *Hypsolebias* (see Costa, 2010). The species *Astyanax novae* was previously considered as one more example of this pattern (Garutti and Venere, 2009; Lima and Caires, 2011; Dagosta et al., 2014), but in reality has a wider distribution (see Freitas et al., 2015).

FIG. 20. Distribution of some lineages in Rio Tapajós basin and neighboring drainages. Dots are records in Rio Tapajós basin; stars are records in neighboring drainages. Data from MZUSP with additional records from literature. Each color represents a different lineage: light blue (*Hemigrammus silimoni,* see Dagosta et al., 2016); dark blue (*Hyphessobrycon cyanotaenia*, see Dagosta et al., 2016); light violet (*Hyphessobrycon hexastichos*); dark violet (*Hyphessobrycon cachimbensis*); white (*Hyphessobrycon melanostichos*); light yellow (Hyphessobrycon psittacus, see Dagosta et al. 2016); dark yellow (*Moenkhausia levidorsa*, see Dagosta et al., 2016); light green (*Bryconadenos tanaothoros*); dark green (*Inpaichthys* spp., see Dagosta et al., 2016); red (*Moenkhausia cosmops*, see Ohara and Lima, 2015b); orange (*Moenkhausia rubra*); dark pink (*Moenkhausia uirapuru*, see Ohara and Lima, 2015b); light pink (*Utiaritichthys* spp); light brown (*Leporinus octomaculatus*, see Birindelli and Britski, 2009); dark brown (*Pyrrhulina marylinae*, see Netto-Ferreira and Marinho, 2013); black (*Cichla mirianae*, see Kullander and Ferreira, 2006); grey (*Lebiasina melanoguttata*).

Tocantins and Upper Paraná

Some confirmed examples of lineages shared between those regions are: *Characidium xanthopterum* (see Silveira et al., 2008), *Corumbataia* spp. (see Britski, 1997; Carvalho, 2008), *Hasemania crenuchoides* (see Serra and Langeani, 2015), and *Rhinolekos* spp. (see Martins and Langeani, 2011; Roxo et al., 2015). Additional species are shared exclusively between the Tocantins and upper Paraná plus the São Francisco: *Brycon nattereri* (see Lima, 2017), *Moenkhausia aurantia, Hyphessobrycon coelestinus* (see Aquino and Carvalho, 2014), and *Cetopsorhamdia iheringi.*

Madeira and Paraguay

As discussed above in South American Lowlands, there are many events of biotic dispersal between the Amazon and the upper Paraguay, with all cases involving only part of the Rio Madeira basin. It is therefore not surprising that several taxa are shared between the Madeira and the Paraguay and that such congruent distributions are for the most part temporally decoupled, i.e., pseudocongruences (sensu Donoghue and Moore, 2003). Different subbasins of the Rio Madeira drainage share taxa exclusively with the Paraná-Paraguay, with most of such cases being from the Rio Guaporé and the Rio Mamoré. Many studies have discussed a common biogeographical history between those two regions (see Pearson, 1937; Hubert and Renno, 2006; Carvalho and Albert, 2011b; Ota et al., 2014). Some examples are: *Aequidens plagiozonatus, Aphyocharax anisitsi* (see Souza-Lima, 2003), *Apistogramma trifasciata* (see Kullander, 2003), *Astyanacinus moorii, Astyanax lineatus, Cetopsis starnesi* (see Vari et al., 2005), *Corydoras polystictus, Gymnogeophagus balzanii* (see Reis and Malabarba, 1988), *Hemigrammus machadoi* (see Ota et al., 2014), *H. mahnerti* (see Ota, 2010), *H. tridens, Hyphessobrycon elachys, H. megalopterus* (see Lima and Malabarba, 2003), *Imparfinis guttatus* (see Queiroz et al., 2013), *Laetacara dorsigera* (see Linke and Staeck, 1994), *Markiana nigripinnis, Megalonema platanum* (see Queiroz et al., 2013), *Odontostilbe paraguayensis* (see Bührnheim, 2006), *Oligosarcus pintoi* (see Ribeiro and Menezes, 2015), *Parodon carrikeri* (see Schaefer, 2011), *Piabucus melanostomus* (see Britski et al., 1999; Queiroz et al., 2013), *Pimelodella mucosa* (see Queiroz et al., 2013), *Psectrogaster curviventris* (see Vari, 1989b), *Rineloricaria aurata* (see Vera-Alcaraz et al., 2012), *Scoloplax empousa* (see Schaefer et al., 1989), and *Trachydoras paraguayensis* (see Sabaj and Arce, 2017).

Branco and Essequibo

Those two basins have a common geomorphological history resulting from a series of capture events of the proto-Berbice by the Rio Branco drainage during the Pleistocene (Crawford et al., 1985; Gibbs and Barron, 1993; Souza et al., 2012). Such events may account for the conspicuous elements shared between the two basins (see Lujan and Armbruster, 2011; Souza et al., 2012). Some examples include: *Apistogramma rupununi* (see Kullander, 2003), *Astyanax rupununi* (see Souza et al., 2012), *Cetopsidium roae* (see Souza et al., 2012), *Denticetopsis iwokrama* (see Souza et al., 2012), *Guianacara dacrya* (Arbour and López-Fernández, 2011), *Hypostomus macushi* (see Armbruster and Souza, 2005), *Parodon bifasciatus* (see Souza et al., 2012), *Pseudancistrus nigrescens* (see Souza et al., 2012), *Rhinodoras armbrusteri* (Sabaj Pérez et al., 2008), and *Sturisoma monopelte* (see Souza et al., 2012).

Negro and Orinoco

A number of contributions have explored the common biogeographical history of these two basins (see Winemiller et al., 2008; Willis et al., 2010; Winemiller and Willis, 2011). Examples of fish species shared exclusively between the Negro and the Orinoco are numerous and include: *Acestridium dichromum* (see Retzer et al., 1999), *Acestridium martini* (see Retzer et al., 1999), *Creagrutus phasma* (see Vari and Harold, 2001), *Creagrutus runa, C. vexillapinnus* and *C.*

zephyrus (see Vari and Harold, 2001), *Geophagus abalios* and *G. dicrozoster* (see López-Fernández and Taphorn, 2004), *Hemiancistrus subviridis* (see Wernecke et al., 2005), *Hemigrammus barrigonae*, *Hemigrammus bleheri* (see Géry and Mahnert, 1986), *Heterocharax leptogrammus* (see Toledo-Piza, 2000b), *Hoplarchus psittacus*, *Hyphessobrycon epicharis* (see Weitzman and Palmer, 1997), *Hypostomus sculpodon* (see Armbruster, 2003), *Laetacara fulvipinnis* (see Staeck and Schindler, 2007), *Leporinus enyae* (see Burns et al., 2017), *Microcharacidium gnomus* (see Buckup, 1993), *Neblinichthys pilosus* (see Ferraris et al., 1986), *Odontostilbe pulchra* (see Bührnheim and Malabarba, 2007), *Phenacogaster prolatus* (see Lucena and Malabarba, 2010), *Prochilodus mariae* (see Castro and Vari, 2004), *Pseudancistrus pectegenitor* (see Lujan et al., 2007), *Pseudancistrus sidereus* (see Armbruster, 2004), *Pseudanos varii* (see Birindelli et al., 2012), *Pseudolithoxus nicoi* (see Lujan and Birindelli, 2011), *Pterophyllum altum* (see Schultz, 1967), *Ptychocharax rhyacophila* (see Weitzman et al., 1994), *Racenisia fimbriipinna* (see Mago-Leccia, 1994), *Rhinobrycon negrensis* (see Lasso et al., 2004), *Serrabrycon magoi* (see Lasso et al., 2004), and *Tometes makue* (see Andrade, 2013).

The Casiquiare Canal is a portion of the Rio Orinoco that was redirected to flow part of the year to the Rio Negro basin (Albert and Carvalho, 2011) and that now connects the two drainages by a permanent waterway with minimal gradient. Such a connection was mentioned by Eigenmann (1909) in his description of his Amazon Province in a dispersalist context and later proposed by Vari (1988) as the factor responsible for some curimatid species shared between the Amazon and Orinoco. Albert et al. (2006) and Winemiller et al. (2008) questioned the relevance of the physical Casiquiare connection as a species-dispersion route, because there are rapids on both sides of the divide (e.g., in Porto Ayacucho and in São Gabriel da Cachoeira) and possible chemical barriers (pH, temperature, and conductivity). It is possible that part of the fish fauna shared between the Orinoco and Negro is in fact derived from the proto-Amazon-Orinoco and predates their hydrological separation.

Negro and Branco

The Rio Negro basin provides a clear example that hydrographic limits do not necessarily imply historical connections. Although the Rio Branco is the largest tributary of the Negro and the two are not separated by any physical barriers, each of them shares more species with adjoining non-Amazonian basins than with each other (with the Orinoco in the case of the Negro and with the Essequibo in the case of the Branco). In addition to the different geomorphological history of each basin, markedly different physicochemical parameters may also in part explain the small number of taxa exclusively shared between them. As pointed out by Ferreira et al. (2006), the Rio Negro predominantly drains lowland soils poor in cations with exceptionally low rates of mineral erosion, while the Rio Branco drains highland soils of an older landscape, richer in cations derived from the erosion of relatively stable igneous rocky beds. There are very few examples of species reliably restricted to the Negro and Branco: *Physopyxis cristata* (see Sousa and Py-Daniel, 2005), *Apistogramma gibbiceps* (see Kullander, 1980), and *Crenicichla virgatula* (see Ito, 2013).

Negro to Trombetas

This pattern refers to the fish fauna common to the left-bank Amazonian tributaries east of the Rio Negro: Urubu, Uatumã, Nhamundá, and Trombetas. Together, they share some taxa exclusively with the Rio Negro or with the Negro-Orinoco: *Acestridium discus* (Negro, Branco, and Trombetas), *Ageneiosus polystictus* (Negro, Urubu, and Trombetas; see Ribeiro et al., 2017), *Asterophysus batrachus* (Orinoco-Negro and Uatumã), *Anduzedoras oxyrhynchus* (Orinoco-Negro, Branco, Urubu, and Trombetas),

Auchenipterichthys punctatus (Negro, Branco, and Urubu), *Nemuroglanis pauciradiatus* (Negro, Branco, Urubu, and Trombetas), *Pygidianops amphioxus* (Negro and Nhamundá; see de Pinna and Kirovsky, 2011), and *Poecilocharax weitzmani* (Orinoco-Negro, Branco, Urubu).

Poorly Sampled Neighboring Basins in the Guiana Shield

Some basins draining the Guiana Shield into the Amazon, such as the Urubu, Uatumã, Trombetas, and Paru, are relatively poorly known as to their ichthyofaunal composition, with comparatively few reported species, rare cases of endemism and few species shared among each other. Such precarious knowledge precludes a clear understanding of the connections of the fish faunas in those basins and few relevant examples deserve note: the Uatumã and Trombetas exclusively share *Cetopsidium ferreirai* (see Vari et al., 2005) and *Cichla vazzoleri* (see Kullander and Ferreira, 2006), while the Paru and Jari exclusively have *Hypomasticus lineomaculatus* (see Birindelli et al., 2013).

Cis-Andean Foothills

Another pattern related with the circumferential pattern of Géry (1962) is the cis-Andean Foothills distribution. The name refers to the highland region surrounding the cis-Andean lowlands, mostly around the Western Amazon (fig. 21A). As in the Brazilian Shield pattern, the present one comprises rheophilic species, restricted to fast-flowing, highly oxygenated waters. This pattern was first identified by Vari (1988: 360): "Other species ranges appear to be associated with the more swiftly flowing piedmont streams of the western margins of the Amazon basin, and those species extend north into the western and northern margins of the Río Orinoco system." Shortly thereafter, a similar pattern was described by Ibarra and Stewart (1989) for the Rio Napo, where the altitudinal gradient decisively influenced species composition (see Lujan et al., 2013, for a more complex scenario). The pattern described here differs from the shield patterns in being not only wider, but also associated with rivers draining the eastern versant of the Andean range, and sometimes the western versant as well. Because the examples known are absent in the Amazonian versants of the Brazilian and Guiana shields, this pattern seems to be strictly associated with the history of the foreland basin and with the Andean uplift.

Some of the known examples include species with both narrow and wide distributions. Examples in the former category include *Acrobrycon ipanquianus* (see Arcila et al., 2013), *Attonitus* (see Vari and Ortega, 2000), *Creagrutus flavescens*, *C. gephyrus*, *C. kunturus*, and *C. muelleri* (see Vari and Harold, 2001). Cases of wide distributions in the Andean Foothills pattern comprise the family Astroblepidae (see Schaefer and Arroyave, 2010), *Astyanacinus* spp. (see fig. 21B; Dagosta, 2011), *Ernstichthys* spp. (see Stewart, 1985), *Rhyacoglanis* (see Shibatta and Vari, 2017), *Xyliphius* spp. (see Carvalho et al., 2017), *Leporinus striatus* (see fig. 21C; Birindelli and Britski, 2013), *Steindachnerina dobula* (fig. 21D) and *S. guentheri* (see Vari, 1991), a clade composed of *Creagrutus muelleri*, *C. ouranonastes*, and *C. peruanus* (see Vari and Harold, 2001), and putative sister relationship between *Brycon hilarii* and *B. whitei* (see Lima, 2017). Another notable example is the entire genus *Hemibrycon* (excepting *H. surinamensis*, sole species in the genus with an Amazon-core Highlands pattern; see Bertaco and Malabarba, 2010).

Lima and Ribeiro (2011) discuss a pattern similar to the one described here, in which lineages are restricted to upper portions of the foreland basin due to ecological requirements. As done here, those authors also distinguish this highland of the Foreland Basin pattern from that of the Brazilian Shield highland pattern. Wilkinson et al. (2010), in a discussion of the action of the megafans, also propose a pattern similar to the one advanced here, although not distinguishing shield highlands from the foreland-basin highlands.

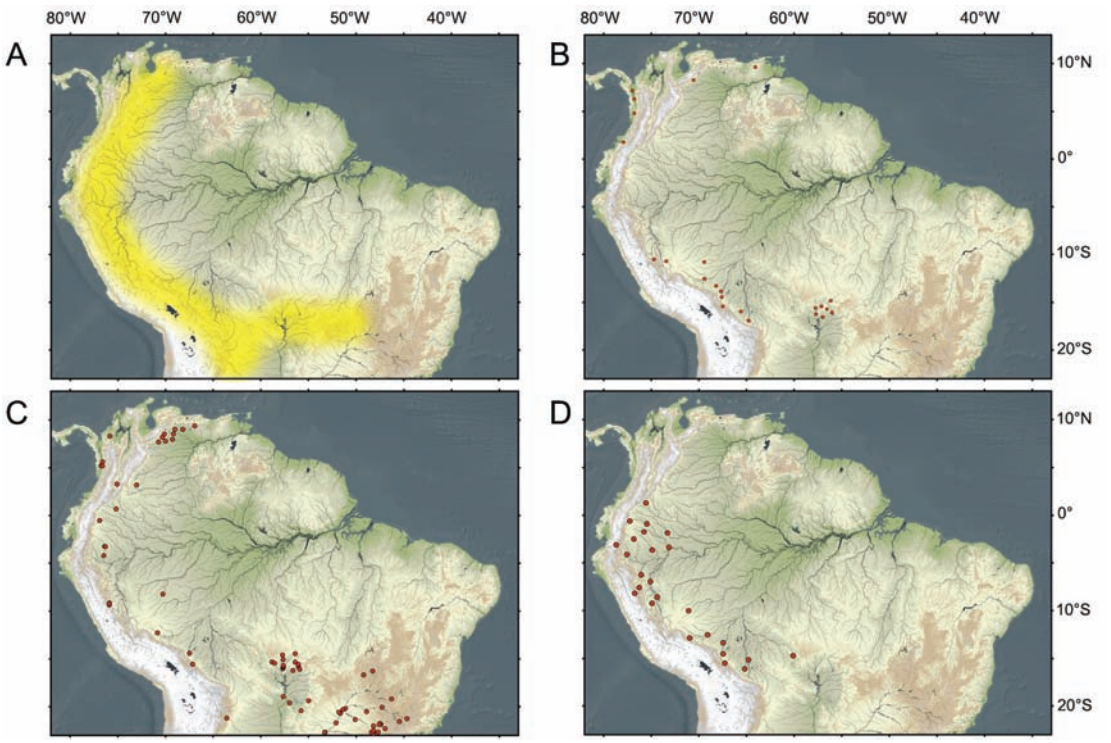


FIG. 21. Cis-Andean foothills. **A.** Yellow area delimits the distribution pattern. **B.** *Astyanacinus* spp. (data from Dagosta, 2011). **C.** *Leporinus striatus* (data from Birindelli and Britski, 2013). **D.** *Steindachnerina dobula* (data from Vari, 1991).

Central Blackwater Amazon

The name of this pattern refers to the most common (although by no means exclusive) water type of the rivers within its limits. Its position is approximately at the central portion of the Amazon (fig. 22A), although its western limits are not precisely defined. The distribution of most examples extends to the mouth of the Rio Negro, with some going farther, to the lower Japurá, lake Tefé, or into Peru. To the east, the pattern is almost always delimited by the mouth of the Rio Tapajós. Northward, most examples are restricted to the Negro/Orinoco, with some lineages found also in the Essequibo. To the south, species extend to the middle portion of the Tapajós, but may be more broadly distributed in the Rio Madeira, to tributaries of Mamoré/Guaporé.

The first author to propose this pattern of distribution was Kullander (1986), in discussing congruent areas between species of cichlids and characids of the genus *Paracheirodon* (see Kullander, 1986: figs. 5, 6). Independently, Vari (1988: fig. 7) inferred that a then-undescribed species of *Curimata* had a pattern of distribution indicative of a preference for acidic waters, not exclusively in the Rio Negro basin, but also in other Central Amazonian localities.

This biogeographical pattern also has surfaced occasionally in the literature, where it has been indicative of possible taxonomic problems. The first paper to notice something noteworthy in such distributions was Vari and Harold (2001), in the redescription of *Creagrutus maxillaris*. That species is broadly distributed in the Orinoco and the upper Rio Negro. The authors then had only a single lot with few poorly preserved

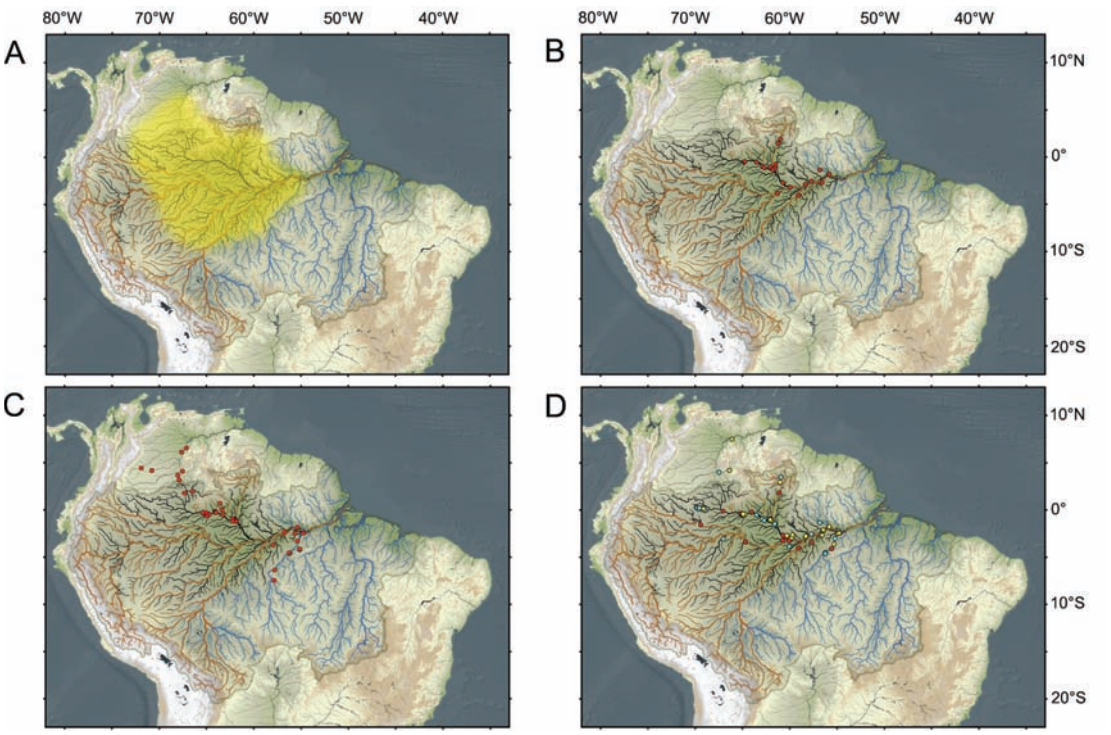


FIG. 22. Central Blackwater Amazon. **A.** Yellow area delimits the distribution pattern. **B.** *Biotoecus* spp. (data fom Kullander, 1989). **C.** *Dicrossus* spp. (data fom Kullander, 2011). **D.** *Hemigrammus analis* (blue dots; records from MZUSP), *Hemigrammus coeruleus* (red dots; records from MZUSP), *Hemigrammus stictus* (yellow dots; records from MZUSP).

specimens from the Rio Madeira (AMNH 39855) and stated that the presence of *C. maxillaris* in that basin required confirmation by additional material (later reported by Queiroz et al., 2013).

A similar situation happened with *Chalceus macrolepidotus* in Zanata and Toledo-Piza (2004), whose sole sample from the Madeira basin was considered questionable because of its location widely disjunct from that of other known lots of the species. Likewise, Kullander and Ferreira (2006: 377) disregarded two samples of *Cichla temensis* from the Rio Madeira, not including them in the map or material examined of the species because "there is nearly no other *Cichla* material available from the Brazilian portion of the Madeira drainage to permit an understanding of the distribution of *C. temensis* in this region." Clearly, in all examples the odd disjunct nature of such distributions influenced the respective authors´ hesitation about their own results. Our recognized pattern, however, shows that such distributions joining the Negro and Madeira are not at all abnormal. This pattern of distribution is recovered, in part, in the analyses of Dagosta and de Pinna (2017).

Examples of lineages with a Central Blackwater Amazon pattern include: *Aequidens mauesanus* (Madeira and Tapajós, see Kullander, 2003), *Acestridium* spp. (Orinoco/Negro, Madeira, and Tapajós), *Astyanax ajuricaba* (Negro, Tapajós, see Marinho and Lima, 2009), *Boulengerella lucius* (Orinoco/Negro, Tapajós, and Trombetas, see Vari, 1995), *Brachyhypopomus hendersoni* (Tefé, Negro, and Essequibo, see Crampton et al., 2016), *Bryconops inpai* (Orinoco/Negro, Tapajós, Madeira, and Trombetas), *Chalceus spilogyros*

(Madeira, Tapajós, and Trombetas, see Zanata and Toledo-Piza, 2004), *C. macrolepidotus* (Orinoco/Negro/Essequibo and Madeira, see Zanata and Toledo-Piza, 2004), *Charax condei* (Negro and Tapajós, see Menezes and Lucena, 2014), *Cichla temensis* (Orinoco/Negro and Madeira, see Kullander and Ferreira, 2006), clade *Creagrutus maxillaris* + *C. cracentis* (Orinoco/Negro, Madeira, and Tapajós, see Vari and Harold, 2001), *Copella nattereri* (Orinoco/Negro, Tapajós, Madeira, Trombetas, and some records in the Amazon above the mouth of Rio Negro, see Marinho and Menezes, 2017), *Cynodon septenarius* (Essequibo/Orinoco/Negro, Uatumã, Tapajós, Trombetas, and Tefé), *Curimata incompta* (Orinoco/Negro, Madeira, see Vari, 1988), *Cyphocharax abramoides* (Negro, Tapajós, and Trombetas, see Vari, 1992b), *C. nigripinnis* (Negro, Tapajós, and Amazonas, see Vari, 1992b), *Elachocharax junki* (Negro and Madeira, see Weitzman and Géry, 1981), *Biotoecus* spp. (Orinoco/Negro, Uatumã, and Trombetas, fig. 22B; see Kullander, 1989), *Dicrossus* spp. (Orinoco/Negro, Madeira, Tapajós, and Trombetas, fig. 22C; see Kullander, 2011), *Gnathocharax* (Orinoco/Negro/Essequibo, Madeira, Tapajós, and Trombetas), *Hemigrammus analis* (Purus, Jutaí, Negro, Madeira, Tapajós, and Trombetas, fig. 22D), *H. coeruleus* (Orinoco/Negro/Essequibo, Madeira, Tapajós, and Trombetas, fig. 22D), *H. hyanuary* (Orinoco/Negro, Madeira, and Tapajós), *H. stictus* (Orinoco/Negro, Madeira, and Tapajós, fig. 22D), *H. vorderwinkleri* (Orinoco/Negro, Madeira, Tapajós, and Trombetas), *Heterocharax virgulatus* (Orinoco/Negro, Madeira, and Tapajós, see Toledo-Piza, 2000b), *Hoplocharax goethei* (Orinoco/Negro, Madeira, Tapajós, and Trombetas), *Hyphessobrycon sweglesi* (lower Purus, Negro, and Madeira), *Iguanodectes geisleri* (Orinoco/Negro and Madeira), *Jupiaba* gr. *atypindi* (Negro and Madeira), *Leporinus altipinnis* (Orinoco/Negro, Madeira, and Tapajós, see Britski and Birindelli, 2016), *L. aripuanaensis* (Branco, Madeira, and Trombetas), *Leporinus gomesi* (Madeira and Negro), *L. klausewitzi* (Negro and Madeira), *Metynnis hypsauchen* (Orinoco/Negro/Essequibo, Madeira, Tapajós, and Trombetas, see Ota, 2015), *M. melanogrammus* (Orinoco/Negro, Uatumã, Trombetas, Tapajós, and Sucunduri (Madeira), see Ota et al., 2016), *Moenkhausia hemigrammoides* (Maroni, Suriname, Corentyne, Negro, Madeira, Tapajós, and Trombetas), *M. lata* (Orinoco/Negro, Madeira, and Tapajós, M. Marinho personal commun.), *Nannostomus marilynae* (Orinoco/Negro and Madeira), *Oxyropsis acutirostra* (Orinoco/Negro and Tapajós), *Poecilocharax* spp. (Orinoco/Negro and Madeira), *Pygidianops* spp. (Orinoco/Negro and Madeira), *Rhinobrycon negrensis* (Orinoco/Negro and Madeira), *Satanoperca lilith* (Negro, Uatumã, Trombetas, and Madeira, see Ota, 2013), *Steindachnerina planiventris* (Negro, Japurá, and Madeira, see Vari, 1991), *Symphysodon discus* (Negro, Madeira, and Trombetas, see Bleher et al., 2007; Farias and Hrbek, 2008; Amado et al., 2011), *Taeniacara candidi* (Negro, Tapajós, and Trombetas) and Hypoptopomatinae new genus (Negro, Madeira, and Tapajós, see Delapieve, 2014). Other potential examples are *Moenkhausia diktyota* (Madeira) and *Hemigrammus pretoensis* (Amazonas and Negro), which despite their current separate generic assignments are actually close relatives, perhaps even synonyms (F.C.P.D., personal obs.).

The sharing of so many lineages clearly indicates strong historical connections among the Orinoco/Negro, Madeira and Tapajós. More importantly, all lineages with this distribution pattern are absent in the Brazilian Shield (except for some rare cases in the middle to lower Tapajós, at the periphery of the Shield, see fig. 22C). Despite such strong signal, no independent geomorphological history was identified that could explain this pattern. While Cretaceous deposits from those regions are well known, the Cenozoic sedimentary history is still very poorly known (Soares, 2007). The lack of such critical data does not allow a more precise evaluation of the biogeographically relevant processes and events in the region. It is clear that the lower sectors of those rivers (Negro, Purus, and Madeira), and even the portion of the Rio Amazonas in that

region, underwent course changes during the Pleistocene as demonstrated by paleocanals (Latrubesse and Franzinelli, 2002; Almeida-Filho and Miranda, 2007; Irion et al., 2010; Teixeira and Soares, 2011; Hayakawa and Rossetti, 2015; but see Albert et al., 2018, for reservations about the accuracy of optically stimulated luminescence, or OSL, method for dating sediments of this type and age). However, details about the dynamics and timing of those events are unavailable at present.

One exception is the work of Ruokolainen et al. (2018). The authors present evidence of river captures and avulsions during the late Pleistocene–Holocene in central Amazon, involving rivers Negro, Madeira, Purus and Juruá. Ruokolainen et al. demonstrate that the river network in the region has been anything but stable. According to them, during the past 50,000 years there have been many cases of river avulsions, with consequent changes in the historical connections among major tributary rivers of the central Amazon. The latest major river capture event converted the Japurá from a tributary of the Rio Negro to a tributary of the Amazon, only 1000 years ago. Such broad-scale lability implies that lowland rivers cannot have been efficient biogeographical dispersal barriers to terrestrial biota, and even less so for fishes. In such a scenario, river captures and avulsions in that region may have contributed, at least in part, to the origin of the pattern of distribution discussed here.

As another relevant point, the Central Blackwater Amazon pattern follows remarkably closely the range of blackwater Amazonian rivers recently compiled by Venticinque et al. (2016) (see fig. 20A–D). Those authors demonstrate that there are numerous blackwater rivers scattered throughout the central Amazon, confirming Fink and Fink (1979: 18): "the Rio Negro is the major 'black' water river in Amazonia; however, similar conditions have a spotty distribution through much of central Amazonia and many *igarapés* and rios of the terra firma consist of this type of water." Such a network provides ample opportunity for species restricted to blackwater to inhabit regions of the upper Amazon, approximately up to the mouth of the Rio Marañon in the Ucayali. A hypothesis that blackwater is the determining factor in the pattern herein described must be tested against a refinement of the species' locality data. The small-scale mosaic physical distribution of blackwater tributaries in that region makes it very difficult to extract such information from usual museum data. For example, the Rio Madeira, although widely recognized as a whitewater river, is abundantly irrigated by tributaries of all water types (fig. 20). Therefore, the provenance of a sample from the Madeira says little about water type preferences unless associated with very precise locality information. Despite such limitations, it is remarkable that many of the species in the Central Blackwater Amazon pattern that occur in the Rio Madeira or Tapajós are restricted to the lower sectors of those basins, exactly where their blackwater tributaries are most abundant. Again, we highlight the fact that water type is not a random variable, but instead closely related to the geological history of the terrain it drains. Therefore, a distribution pattern determined by water type is also indirectly associated with a historical component and cannot be taken at face value as a purely ecological determinant.

Allopatric Branco-Tocantins

There are few examples of Amazonian fish species with disjunct distributions. Five unrelated species display an intriguing pattern of congruent disjunct distributions: *Creagrutus menezesi* (see Vari and Harold, 2001), *Exodon paradoxus, Leporacanthicus galaxias, Leporinus desmotes* (see Burns et al., 2017), and *Leptorhamdia essequibensis* (see Bockmann, 2003). Those species are found in the Branco and Tocantins basins, with some also having records in the Essequibo and Orinoco. All five species are well known in their taxonomy and geographical distribution, thus reducing the possibility of sampling gaps.

The Branco and Tocantins basins are widely separated, making such allopatric disjunctions all

the more noteworthy, but no geomorphological evidence has been associated with such pattern (the explanations in Eigenmann´s Eastern Highlands [cf. also Albert et al., 2011: 50–52] do not account for the specific pattern discussed here, because in the present case the lineages involved are not present in the rest of the shield, i.e., the Tapajós, Xingu, Madeira, Trombetas, Jari, etc.). The geomorphological history of the Rio Branco is related to the proto-Berbice (Lujan and Armbruster, 2011), where the former had courses preferentially flowing from southwest to northeast toward the Caribbean Sea. Erosion of the rocky basement of the Guiana Shield caused the reorganization of the proto-Berbice drainage network and the southward reversal of its main course, making the Rio Branco a tributary of the Rio Negro (Schaefer and Dalrymple, 1996). The geomorphological history of the Rio Tocantins, in turn, is mostly associated with the geological evolution of the Brazilian Shield and with other large rivers such as the Tapajós, Xingu, Paraná-Paraguay, and São Francisco (Lima and Caires, 2011; Lima and Ribeiro, 2011). Of course, before 10 Ma there were no large whitewater rivers or floodplains separating clear-water tributaries of the Guiana and Brazilian shields, which might seem like a possible explanation. However, we again emphasize that the lineages constituting this pattern are not widely present in shield drainages, thus invalidating this broader paleoscenario as a causal factor. Of course, this scenario would hold in case the present disjunct pattern is a relict of a broader pattern that comprised other shield rivers, a hypothesis for which there is no evidence.

The savannahs of the Rio Branco and Essequibo are biogeographically distinct from those of central Brazil, even though they share some fish species (Ferreira et al., 2006). As noted by López-Fernández and Albert (2011), the importance of savannas for the evolution of the modern fish fauna of the Neotropics cannot be overemphasized. In the absence of any geological evidence that might explain the exclusive sharing of species between the Branco and Tocantins, the presence of savannah systems may offer clues for a possible ecological explanation.

Absence Patterns

Among the most curious distributional phenomena in the Amazon is the absence of some fish taxa in regions where they were expected to occur on the basis of the distribution of their close relatives and higher groups. Those absences are often associated with some clearly identifiable barriers of physical (e.g., waterfalls) or physico-ecological (e.g., water type) nature.

The most conspicuous Absence pattern is seen in the upper Juruena river, a pattern described in detail in Chapada dos Parecis: Extreme Shield. Another remarkable example is the upper Rio Tocantins. Upriver from the region of Imperatriz (in the Brazilian state of Maranhão) and Itaguatins (in the Brazilian state of Tocantins), the channel of the Rio Tocantins has rapids in sectors that may help explain the absence of various groups otherwise distributed in the entire Amazon that are present in the Araguaia or in lower Tocantins basins. Some examples are: *Acestrorhynchus falcirostris* (see González, 2015), *Apistogramma* spp., *Chaetobranchus* spp., *Hydrolycus tatauaia* (see Toledo-Piza et al., 1999), *Hypophthalmus marginatus*, *Hypselecara* spp., *Mastiglanis asopos*, *Megalechis thoracata* (see Reis, 1997), *Moenkhausia cotinho*, *Mylossoma* spp. (see Mateussi, 2015), *Ochmacanthus* spp. (see Neto, 2014), *Pellona* spp. (see Melo, 2001), *Potamorrhaphis* spp. (see Collette, 1982), and *Semaprochilodus brama* (see Castro and Vari, 2004). Other examples of biogeographically isolated Amazonian regions are the mid- and upper Rio Madeira, separated by the rapids in the region of Porto Velho, which block the upriver distribution of, for example, *Arapaima*.

The absence of certain lineages is also influenced by other factors such as tidal effects. Goulding et al. (2003) showed that downstream from the region of Óbidos (in the Brazilian state of Amazonas), the tidal regime starts to influence the circadian rhythm of the Amazon, probably affecting the distribution of fish lineages (Jégu and Keith, 1999; Lima and Ribeiro, 2011), especially those with feeding and breeding periods narrowly associated with drought-flood cycles. Some examples of fishes that

do not occur in the lower Amazon are: *Acestrorhynchus granducolis* (see González, 2015), *Brycon amazonicus* (see Lima, 2017), *Colossoma macropomum* (see Araujo-Lima and Goulding, 1997; Lima and Ribeiro, 2011), *Copella nattereri* (see Marinho and Menezes, 2017), *Piaractus brachypomus* (see Jégu and Keith, 1999), *Potamorhina altamazonica* (see Vari, 1984), and *Serrasalmus elongatus* (see Jégu and Keith, 1999).

As seen above, water type has a major influence on biogeochemical processes and on the distribution and dynamics of aquatic habitats and associated biota (Venticique et al., 2016). Expectedly, it is an important factor in the geographical distribution of Amazonian fish lineages. As widely reported in the literature (see Sioli, 1984; Goulding et al., 2003), Amazonian rivers display enormous differences in pH and concentration of dissolved solutes, according to the type of soil they drain. Wallace (1889) was the first to note that water type influenced the composition of fish assemblages in the Amazon (Dagosta and de Pinna, 2018), an observation repeatedly confirmed in subsequent studies (see Roberts, 1972; Kullander, 1986; Goulding et al., 1988; Vari, 1988; Araujo-Lima and Goulding, 1997; Saint-Paul et al., 2000; Lima and Ribeiro, 2011). The extremely acidic water of the Rio Negro, in particular, may be a deterrent to many fish lineages. Some examples of fishes absent in the Negro, yet present in neighboring basins and widely distributed in the Amazon include: the subfamily Stethaprioninae (see Dagosta and Pinna, 2017; Reis, 1989), the genera *Galeocharax* (see Giovannetti et al., 2017) and *Hypoptopoma* (see Aquino and Schaefer, 2010), and several species such as *Anostomus ternetzi* (see Lima and Ribeiro, 2011), *Brachyplatystoma juruense, Cheirocerus goeldii* (see Stewart and Pavlik, 1985), *Copella stigmasemion* (see Marinho and Menezes, 2017), *Curimatella dorsalis* (see Vari, 1992a), *Hemiodus microlepis* (see Langeani, 1996), *Hemisorubim platyrhynchos*, *Jupiaba polylepis*, *Limatulichthys griseus* (see Ohara, 2010), *Megalodoras uranoscopus*, *Oxydoras niger*, *Pimelodus blochii*, *Prochilodus nigricans* (see Castro and Vari, 2004), *Pygocentrus nattereri*, *Semaprochilodus insignis* (see Castro and Vari, 2004), and *Tympanopleura atronasus* (see Walsh et al., 2015).

It is possible to go beyond the mere identification of absence biogeographical patterns. Our earlier biogeographic analyses have demonstrated that some absences are the result of extinctions rather than primitive absences (Dagosta and de Pinna, 2017); moreover, we found that the absence of several lineages in the Rio Negro are autapomorphic for the basin, i.e., their ancestral areas (historically related) have the respective taxa. Therefore, their absence in present-day Rio Negro may be the result of extinctions (discarding cases of pseudo-absences). Recently, Ruokolainen et al. (2018) provided convincing evidence that the Rio Japurá was a tributary to the lower Rio Negro and that a river capture event diverted it to flow into the Amazon (Solimões). The connection between the Rio Japurá and the Rio Negro may have been broken as recently as 1000 years ago. According to these authors, until that time the lower Rio Negro was not a blackwater river, as it presently is, and it carried a much larger load of sediments. Such evidence further corroborates the hypothesis of Dagosta and de Pinna (2017) that the lower Rio Negro basin was not always as hostile to some otherwise ubiquitous Amazonian lineages as it is today and may have had a less extreme type of water earlier in its history. At least for the lower part of its course, the Rio Negro did not have waters as acidic and nutrient poor as today, and did not impede the existence of some lineages that are now absent in the basin.

Endemism

Although a majority of 2716 species of Amazonian fishes examined here occur in more than one subdrainage, there are numerous examples of basin-specific endemics. With the regions defined by Dagosta and de Pinna (2017) as background, at least 831 Amazonian fish species are found in a single drainage or subregion

thereof (fig. 4, appendix 1). An additional 196 species are also basin specific, given a wider definition of basin (e.g., species restricted to the Tapajós but occurring in more than one subbasin therein). The latter data are also included in appendix 1, with indications of their respective basins of endemism.

CONCLUSIONS

Distribution patterns decay over time as new ones are superimposed (Grande, 1985; Hunn and Upchurch, 2001; Upchurch and Hunn, 2002; Upchurch et al., 2002; Morrone, 2009), making the disentanglement of their history a complex procedure. More studies on Amazonian fishes are necessary, both on phylogeny, paleontology, phylogeography, and molecular dating in order to empirically test the temporal congruences of the distributional patterns described here. New data on geological history are needed to better understand the effect of riverine configurations in the biogeography of fishes in the basin. Our findings support the conclusion that the biogeographical history of a river is associated less with its size than with its stability through geological time. The mosaic of patterns shown herein demonstrates that the river network in the Amazon has been anything but stable, and that this instability has been a major factor in fish distributions. Different overlapping geomorphological processes, at different times, have left diffuse marks on the composition and distribution of the fish fauna and this process continues to the present. The recent work by Stokes et al. (2018) directly demonstrates the intense dynamism of the region, showing that the Amazon river is capturing headwaters of the Río Orinoco, another step in the continuing reorganization of South American river systems.

Freshwater fishes are physically restricted to hydrographical basins, but in the Amazon basin their distributions often transcend modern hydrographical limits. This is a result of a complex and reticulated history of drainages, a view that has been corroborated by several authors (see Lima and Ribeiro, 2011; Dagosta, 2016; Dagosta and Pinna, 2017). This fact in itself does not disqualify basins as historical agents. Rather, rivers are historically bound areas, even though they are far more complex than hydrographically limited units. Data presented in this paper demonstrate that each hydrographic drainage in the Amazon basin participates simultaneously in various biogeographical patterns and that no single basin is a historically cohesive unit. Likewise, the entire Amazon basin itself does not form a single historical unit. All such conclusions corroborate the hypothesis that hydrographical basins should not be considered a priori as historical units. They are demonstrably reticulate areas that received portions of their biotas at different ages, under the influence of disjunct events. Thus, past geomorphological processes are more informative for understanding the distribution of the Amazonian fishes than present-day basin divides.

ACKNOWLEDGMENTS

This paper is dedicated to the memory of Richard P. Vari for his epochal contributions to the systematics and biogeography of Neotropical fishes and his generous devotion to the formation of new generations of ichthyologists, of which the authors of this paper are deeply grateful beneficiaries. We thank Cristiano Moreira and Marcelo Britto (MNRJ), Lúcia Py-Daniel and Renildo Oliveira (INPA); Cláudio Oliveira and Ricardo Benine (LBP); André Esguícero and Flávio Bockmann (LIRP); Izaura Maschio and Wolmar Wosiacki (MPEG); Jeff Clayton, Jeff Williams, Kris Murphy, Lynne Parenti, Richard Vari and Sandra Raredon (NMNH) for their help and hospitality during visits to the collections under their care. We are grateful to Eduardo Venticique for providing data on water types of Amazonian rivers for figures 7B–D and 20A–D. Gilberto N. Salvador and Eduardo Baena helped in the editing of the maps. José Birindelli provided photos of *Hyphessobrycon psittacus*, *Leporinus octomaculatus*, and *Utiaritichthys sennaebr-*

agai. Authors were funded by FAPESP (FCPD, 2011/23419-1; 2016/07246-3; MP, 2015/26804-4), CNPq (MP, 201088/2014-2) and CAPES (MP, BEX 5840/2014-07). Part of this work was prepared during a sabbatical stay of the second author in the Muséum national d´Histoire naturelle and Université Pierre and Marie Curie (Institut de Systematique, Evolution et Biodiversité), Paris, and the support and hospitality of René Zaragueta-Bagils and Guillaume Lecointre is gratefully acknowledged. The authors thank Universidade Federal da Grande Dourados for funding.

REFERENCES

Albert, J.S., and T.P. Carvalho. 2011. Neogene assembly of modern faunas. *In* J.S. Albert and R.E. Reis (editors), Historical Biogeography of Neotropical Freshwater Fishes: 119–136. Berkeley: University of California Press.

Albert, J.S., and W.G.R. Crampton. 2005. Diversity and phylogeny of Neotropical electric fishes (Gymnotiformes). *In* T.H. Bullock, C.D. Hopkins, A.N. Popper, and R.R. Fay (editors), Electroreception: 360–409. New York: Springer.

Albert, J.S., and W.G.R. Crampton. 2006. *Pariosternarchus amazonensis*: a new genus and species of Neotropical electric fish (Gymnotiformes: Apteronotidae) from the Amazon River. Ichthyological Exploration of Freshwaters 17: 267–274.

Albert, J.S., and R.E. Reis. 2011. Introduction to Neotropical freshwaters. *In* J.S. Albert, and R.E. Reis (editors), Historical biogeography of Neotropical freshwater fishes: 3–19. Berkeley: University of California Press.

Albert, J.S., W.G.R. Crampton, D.H. Thorsen, and N.R. Lovejoy. 2005. Phylogenetic systematics and historical biogeography of the Neotropical electric fish *Gymnotus* (Gymnotidae: Teleostei). Systematics and Biodiversity 2: 375–417.

Albert, J., N. Lovejoy, and W. Crampton. 2006. Miocene tectonism and the separation of cis- and trans-Andean river basins: evidence from Neotropical fishes. Journal of South American Earth 21: 5–13.

Albert, J., P. Petry, and R. Reis. 2011. Major biogeographic and phylogenetic patterns. *In* J. Alberts and R. Reis (editors), Historical biogeography of Neotropical freshwater fishes: 21–57. Berkeley: University of California Press.

Albert, J.S., P. Val, and C. Hoorn. 2018. The changing course of the Amazon River in the Neogene: center stage for Neotropical diversification. Neotropical Ichthyology 16: e180033.

Almeida-Filho, R., and F.P. Miranda. 2007. Mega capture of the Rio Negro and formation of the Anavilhanas Archipelago, Central Amazônia, Brazil: evidences in an SRTM digital elevation model. Remote Sensing of Environment 110: 387–392.

Amado, M.V., I.P. Farias, and T. Hrbek. 2011. A molecular perspective on systematics, taxonomy and classification Amazonian discus fishes of the genus *Symphysodon*. International Journal of Evolutionary Biology. [http://dx.doi.org/10.4061/2011/360654]

Andrade, M. 2013. Revisão Taxonômica de *Tometes* Valenciennes, 1850 (Characiformes: Serrasalmidae) das drenagens do Escudo das Guianas. M.Sc. thesis, Universidade Federal do Pará, Belém, Brazil.

Andrade, M.C., M. Jégu, and T. Giarrizzo. 2016. *Tometes kranponhah* and *Tometes ancylorhynchus* (Characiformes: Serrasalmidae), two new phytophagous serrasalmids, and the first *Tometes* species described from the Brazilian Shield. Journal of Fish Biology 89: 467–494.

Aquino, P., and F. Carvalho. 2014. Peixe da vez: *Hyphessobrycon coelestinus*. Boletim da Sociedade Brasileira de Ictiologia 109: 30.

Aquino, A.E., and S.A. Schaefer. 2010. Systematics of the genus *Hypoptopoma* Günther, 1868 (Siluriformes, Loricariidae). Bulletin of the American Museum of Natural History 336: 1–110.

Araujo-Lima, C., and M. Goulding. 1997. So fruitful a fish: ecology, conservation, and aquaculture of the Amazon's tambaqui. New York: Columbia University Press.

Arbour, J.H., and H. López-Fernández. 2011. *Guianacara dacrya*, a new species from the Rio Branco and Essequibo River drainages of the Guiana Shield (Perciformes: Cichlidae). Neotropical Ichthyology 9: 87–96.

Arcila, D., R. Vari, and N. Menezes. 2013. Revision of the Neotropical genus *Acrobrycon* (Ostariophysi: Characiformes: Characidae) with description of two new species. Copeia 2013: 604–611.

Armbruster, J. 2003. The species of the *Hypostomus cochliodon* group (Siluriformes: Loricariidae). Zootaxa 249: 1–60.

Armbruster, J. 2004. *Pseudancistrus sidereus* a new species from southern Venezuela (Siluriformes: Loricariidae) with a redescription of *Pseudancistrus*. Zootaxa 628: 1–15.

Armbruster, J. 2005. The loricariid catfish genus *Lasiancistrus* (Siluriformes) with descriptions of two new species. Neotropical Ichthyology 3: 549–569.

Armbruster, J. 2008. The genus *Peckoltia* with the description of two new species and a reanalysis of the phylogeny of the genera of the Hypostominae (Siluriformes: Loricariidae). Zootaxa 1822: 1–76.

Armbruster, J., and L. Souza. 2005. *Hypostomus macushi*, a new species of the *Hypostomus cochliodon* group (Siluriformes: Loricariidae) from Guyana. Zootaxa. 1–12.

Barros, M., E. Fraga, and J. Birindelli. 2011. Fishes from Itapecuru River basin, State of Maranhão, northeast Brazil. Brazilian Journal of Biology 71: 375–380.

Barthem, R.B., and M. Goulding. 2007. Um ecossistema inesperado: a Amazônia revelada pela pesca. Lima: Gráfica Biblos.

Barthem, R.B., et al. 2017. Goliath catfish spawning in the far western Amazon confirmed by the distribution of mature adults, drifting larvae and migrating juveniles. Scientific Reports 7: 41784.

Benine, R.C., B.F. Melo, R.M.C. Castro, and C. Oliveira. 2015. Taxonomic revision and molecular phylogeny of *Gymnocorymbus* Eigenmann, 1908 (Teleostei, Characiformes, Characidae). Zootaxa 3956 (1): 1–28.

Bernt, M., and J. Albert. 2017. A new species of deep-channel electric knifefish *Compsaraia* (Apteronotidae, Gymnotiformes) from the Amazon River. Copeia 105: 211–219.

Bertaco, V., and L. Malabarba. 2010. A review of the cis-Andean species of *Hemibrycon* Günther (Teleostei: Characiformes: Characidae: Stevardiinae), with description of two new species. Neotropical Ichthyology 8: 737–770.

Birindelli, J. 2014. Phylogenetic relationships of the South American Doradoidea (Ostariophysi: Siluriformes). Neotropical Ichthyology 12: 451–564.

Birindelli, J., and H. Britski. 2009. New species of the genus *Leporinus* Agassiz (Characiformes: Anostomidae) from the Rio Curuá, Rio Xingu basin, Serra do Cachimbo, Brazil, with comments on *Leporinus reticulatus*. Neotropical Ichthyology 7: 1–10.

Birindelli, J., and H. Britski. 2013. Two new species of *Leporinus* (Characiformes: Anostomidae) from the Brazilian Amazon, and redescription of *Leporinus striatus* Kner 1858. Journal of Fish Biology 83: 1128–1160.

Birindelli, J., and J. Zuanon. 2012. Systematics of the Jaguar catfish genus *Liosomadoras* Fowler, 1940 (Auchenipteridae: Siluriformes). Neotropical Ichthyology 10: 1–11.

Birindelli, J., M. Sabaj Pérez, and D. Taphorn. 2007. New species of *Rhynchodoras* from the Río Orinoco, Venezuela, with comments on the genus (Siluriformes: Doradidae). Copeia 3: 672–684.

Birindelli, J., L. Sousa, and M. Sabaj Pérez. 2008. New species of thorny catfish, genus *Leptodoras* Boulenger (Siluriformes: Doradidae), from Tapajós and Xingu basins, Brazil. Neotropical Ichthyology 6: 465–480.

Birindelli, J., D. Fayal, and W. Wosiacki. 2011. Taxonomic revision of thorny catfish genus *Hassar* (Siluriformes: Doradidae). Neotropical Ichthyology 9: 515–542.

Birindelli, J., F. Lima, and H. Britski. 2012. New species of *Pseudanos* Winterbottom, 1980 (Characiformes: Anostomidae), with notes on the taxonomy of *P. gracilis* and *P. trimaculatus*. Zootaxa 3425: 55–68.

Birindelli, J.L.O., L.A.W. Peixoto, W.B. Wosiacki, and H.A. Britski. 2013. New species of *Hypomasticus* Borodin, 1929 (Characiformes: Anostomidae) from tributaries of the lower Rio Amazonas, Brazil. Copeia 3: 464–469.

Birindelli, J., T. Teixeira, and H. Britski. 2016. Two new species of *Leporinus* Agassiz, 1929 (Characiformes: Anostomidae) from tributaries of the lower Amazon basin in Brazil. Zootaxa 4178: 97–115.

Bleher, H., K.N. Stölting, W. Salzburger, and A. Meyer. 2007. Revision of the genus *Symphysodon* Heckel, 1840 (Teleostei: Perciformes: Cichlidae) based on molecular and morphological characters. Aqua: journal of ichthyology and aquatic biology 12: 133–174.

Bloom, D.D., and N.R. Lovejoy. 2017. On the origins of marine-derived freshwater fishes in South America. Journal of Biogeography 44: 1927–1938.

Bockmann, F.A. 2003. Heptapteridae. *In* R. Reis, L. Malabarba, and S. Kullander (editors), Check list of the freshwater fishes of South and Central America (CLOFFSCA): 406–431. Porto Alegre: EDIPUCRS.

Britski, H. 1997. Descrição de um novo gênero de Hypoptopomatinae, com duas espécies novas (Siluriformes, Loricariidae). Papéis Avulsos de Zoologia 40: 231–255.

Britski, H., and J. Birindelli. 2016. Redescription of *Leporinus altipinnis*, a senior synonym of *L. falcipinnis*, and comments on *L. holostictus* (Characiformes: Anostomidae). Ichthyological Exploration of Freshwaters 27: 25–40.

Britski, H., and F. Lima. 2007. A new species of *Hemigrammus* from the upper Rio Tapajós basin in Brazil

(Teleostei: Characiformes: Characidae). Copeia 3: 565–569.

Britski, H., K. Silimon, and B. Lopes. 1999. Peixes do Pantanal. Manual de identificação. Brasília: EMBRAPA. Serviços de Produção de Informação-SPI.

Britski, H., J. Birindelli, and J. Garavello. 2011. *Synaptolaemus latofasciatus*, a new combination for *Synaptolaemus latofasciatus* Steindachner, 1910 and its junior synonym *Synaptolaemus cingulatus* Myers and Fernández-Yépez, 1950 (Characiformes: Anostomidae). Zootaxa 3018: 59–65.

Buckup, P. 1993. Review of the characidiin fishes (Teleostei: Characiformes), with descriptions of four new genera and 10 new species. Ichthyological Exploration of Freshwaters 4: 97–154.

Bührnheim, C. 2006. Sistemática de Odontostilbe Cope, 1870 com a proposição de uma nova tribo Odontostilbini e redefinição dos gêneros incertae sedis de Cheirodontinae (Ostariophysi: Characiformes: Characidae). Ph.D. dissertation, Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, R.S., Brazil.

Bührnheim, C., and L. Malabarba. 2007. Redescription of *Odontostilbe pulchra* (Gill, 1858) (Teleostei: Characidae: Cheirodontinae), and description of two new species from the Río Orinoco basin. Neotropical Ichthyology 5: 1–20.

Buitrago-Suárez, U., and B. Burr. 2007. Taxonomy of the catfish genus *Pseudoplatystoma* Bleeker (Siluriformes: Pimelodidae) with recognition of eight species. Zootaxa 1512: 1–38.

Burns, M.D., M. Chatfield, J.L.O. Birindelli, and B.L. Sidlauskas. 2017. Systematic assessment of the *Leporinus desmotes* species complex, with a description of two new species. Neotropical Ichthyology 15: 1–24.

Caires, R., and J. Figueiredo. 2011. Review of the genus *Microphilypnus* Myers, 1927 (Teleostei: Gobioidei: Eleotridae) from the lower Amazon basin, with description of one new species. Zootaxa 3036: 39–57.

Callede, J., J.L. Guyot, J. Ronchail, Y. L'Hôte, and H. Niel. 2004. Evolution of the River Amazon's discharge at Óbidos from 1903 to 1999. Hydrological Sciences Journal 49: 85–97.

Campanario, C. 2002. Revisão taxonômica do gênero *Crenuchus* Günther (1863), com uma hipótese sobre a filogenia de Crenuchinae. M.Sc. thesis, Universidade de São Paulo, São Paulo.

Campbell, K., C. Frailey, and L. Romero-Pittman. 2006. The Pan-Amazonian Ucayali Peneplain, late Neogene sedimentation in Amazonia, and the birth of the modern Amazon River system. Palaeogeography, Palaeoclimatology, Palaeoecology 239: 166–219.

Campos-da-Paz, R. 1999. New species of *Megadontognathus* from the Amazon basin, with phylogenetic and taxonomic discussions on the genus (Gymnotiformes: Apteronotidae). Copeia 1999: 1041–1049.

Cardoso, A. 2008. Filogenia da Família Aspredinidae Adams, 1854 e Revisão Taxonômica de Bunocephalinae Eigenmann, and Eigenmann, 1888 (Teleostei: Siluriformes: Aspredinidae). Ph.D. dissertation, Pontifícia Universidade Católica do Rio Grande do Sul, Porte Alegre, R.S., Brazil.

Cardoso, Y., and J. Montoya-Burgos. 2009. Unexpected diversity in the catfish *Pseudancistrus brevispinis* reveals dispersal routes in a Neotropical center of endemism: the Guyanas region. Molecular Ecology 18: 947–964.

Cardoso, D., et al. 2017. Amazon plant diversity revealed by a taxonomically verified species list. Proceedings of the National Academy of Sciences of the United States of America 114: 10695–10700.

Carvalho, T. 2008. A new species of *Corumbataia* (Siluriformes: Loricariidae: Hypoptopomatinae) from upper Rio Tocantins basin, central Brazil. Copeia 2008: 552–557.

Carvalho, T.P., and J.S. Albert. 2011. The Amazon-Paraguay divide. *In* J.S. Albert and R.E. Reis (editors), Historical biogeography of Neotropical freshwater fishes: 193–202. Berkeley: University of California Press.

Carvalho, T., and V. Bertaco. 2006. Two new species of *Hyphessobrycon* (Teleostei: Characidae) from upper Rio Tapajós basin on Chapada dos Parecis, central Brazil. Neotropical Ichthyology 4: 301–308.

Carvalho, T.P., R.E. Reis, and M.H. Sabaj. 2017. Description of a new blind and rare species of *Xyliphius* (Siluriformes: Aspredinidae) from the Amazon basin using high-resolution computed tomography. Copeia 105: 14–28.

Casatti, L. 2002. Taxonomy of the South American genus *Pachypops* Gill 1861 (Teleostei: Perciformes: Sciaenidae), with the description of a new species. Zootaxa 26: 1–20.

Castro, R.M.C., and R.P. Vari. 2004. Detritivores of the South American fish family Prochilodontidae (Teleostei: Ostariophysi; Characifomes). A phylogenetic and revisionary study. Smithsonian Contribution to Zoology 622: 1–189.

Chamon, C.C. 2016. Redescription of *Acanthicus hystrix* Agassiz, 1829 (Siluriformes: Loricariidae), with

comments on the systematics and distribution of the genus. Zootaxa 4088: 395.

Claro-García, A., and O. Shibatta. 2013. The fish fauna of streams from the upper Rio Tocantins basin, Goiás State, Brazil. Check List 9: 028–033.

Collette, B. 1982. South American freshwater needlefishes of the genus *Potamorrhaphis* (Beloniformes: Belonidae). Proceedings of the Biological Society of Washington 95: 714–747.

Cooper, M.A., et al. 1995. Basin development and tectonic history of the Llanos basin, Eastern Cordillera, and Middle Magdalena Valley, Colombia. AAPG Bulletin (American Association of Petroleum Geologists) 79: 1421–1443.

Costa, W. 2004. *Moema apurinan* sp. n. and *Aphyolebias boticarioi* sp. n. (Teleostei: Cyprinodontiformes: Rivulidae): two new annual killifishes from the Rio Purus basin, Brazilian Amazon. Zootaxa 707: 1–12.

Costa, W. 2006. Relationships and taxonomy of the killifish genus *Rivulus* (Cyprinodontiformes: Aplocheiloidei: Rivulidae) from the Brazilian Amazonas river basin, with notes on historical ecology. Aqua: Journal of Ichthyology and Aquatic Biology 11: 133–175.

Costa, W. 2010. Historical biogeography of cynolebiasine annual killifishes inferred from dispersal – vicariance analysis. Journal of Biogeography 2010: 1–10.

Costa, J.B.S., R.L. Bemerguy, Y. Hasui, and M.D. Borges. 2001. Tectonics and paleogeography along the Amazon River. Journal of South American Earth Sciences 14: 335–347.

Coutinho, D., and W. Wosiacki. 2014. A new species of leaffish *Polycentrus* Müller, and Troschel, 1849 (Percomorpha: Polycentridae) from the Rio Negro, Brazil. Neotropical Ichthyology 12: 747–753.

Covain, R., et al. 2012. The *Harttiini* (Siluriformes: Loricariidae) from the Guianas: a multi-table approach to access their diversity, evolution, and distribution. Cybium, International Journal of Ichthyology 36: 115–161.

Cracraft, J. 1994. Species diversity, biogeography, and the evolution of biotas. American Zoologist 34: 33–47.

Crampton, W.G.R. 2007. Diversity and Adaptation in Deep Channel Neotropical Electric Fishes. *In* P. Sebert, D.W. Onyango, and B.G. Kapoor (editors), Fish life in special environments: 283–339. Enfield, NH: Science Publishers.

Crampton, W.G.R. 2011. An ecological perspective on diversity and distributions. *In* J. Albert and R. Reis (editors), Historical biogeography of Neotropical freshwater fishes: 165–189. Berkeley: University of California Press.

Crampton, W.G.R., C.D. de Santana, J.C. Waddell, and N.R. Lovejoy. 2016. A taxonomic revision of the Neotropical electric fish genus *Brachyhypopomus* (Ostariophysi: Gymnotiformes: Hypopomidae), with descriptions of 15 new species. Neotropical Ichthyology 14: e150146.

Crawford, F., C. Szelewski, and G. Alvey. 1985. Geology and exploration in the Takutu graben of Guyana Brazil. Journal of Petroleum Geology 8: 5–36.

Crisci, J. 2000. The voice of historical biogeography. Journal of Biogeography 28: 157–168.

Croizat, L., G. Nelson, and D.E. Rosen. 1974. Centers of origin and related concepts. Systematic Zoology 23: 265–287.

Curtin, T. 1986. Physical observations in the plume region of the Amazon River during peak discharge II. Water masses. Continental Shelf Research 6: 53–71.

Dagosta, F.C.P. 2011. Taxonomia e relações filogenéticas do gênero *Astyanacinus* Eigenmann, 1907 (Characiformes: Characidae). M.Sc. Thesis, Universidade de São Paulo.

Dagosta, F.C.P. 2016. História biogeográfica dos peixes da Bacia Amazônica: uma abordagem metodológica comparativa. Ph.D. dissertation, Universidade de São Paulo, São Paulo.

Dagosta, F.C.P., and M. Pastana. 2014. New species of *Creagrutus* Günther (Characiformes: Characidae) from Rio Tapajós basin, Brazil, with comments on its phylogenetic position. Zootaxa 3765: 571–582.

Dagosta, F.C.P., and M. de Pinna. 2017. Biogeography of Amazonian fishes: deconstructing river basins as biogeographic units. Neotropical Ichthyology 15: e170034.

Dagosta, F.C.P., and M. de Pinna. 2018. A history of the biogeography of Amazonian fishes. Neotropical Ichthyology, 16: e180023.

Dagosta, F., M. Marinho, and P. Camelier. 2014. A new species of *Hyphessobrycon* Durbin (Characiformes: Characidae) from the middle Rio São Francisco and upper and middle Rio Tocantins basins, Brazil, with comments on its biogeographic history. Neotropical Ichthyology 12: 365–375.

Dagosta, F.C.P., M.M.F. Marinho, P. Camelier, and F.C.T. Lima. 2016. A new species of *Hyphessobrycon* (Characiformes: Characidae) from the upper Rio Juruena basin, Central Brazil, with a redescription of *H. cyanotaenia*. Copeia 104: 250–259.

da Graça, W.J., C.S. Pavanelli, and P.A. Buckup 2008. Two new species of *Characidium* (Characiformes: Crenuchidae) from Paraguay and Xingu basins, state of Mato Grosso, Brazil. Copeia 2008: 326–332.

DeCelles, P., and K. Giles. 1996. Foreland basin systems. Basin Research 8: 105–123.

DeCelles, P., and B. Horton. 2003. Early to middle Tertiary foreland basin development and the history of Andean crustal shortening in Bolivia. Geological Society of America Bulletin 115: 58–77.

Delapieve, M.L.S. 2014. Filogenia de Hypoptopomatini (Loricariidae: Hypoptopomatinae). M.Sc. thesis, Universidade Federal do Rio Grande do Sul, Porto Alegre, R.S., Brazil.

De Oliveira, R.R., L.R. Py-Daniel, C.H. Zawadzki, and J. Zuanon. 2016. Two new Amazonian species of *Ancistrus* with vestigial adipose fin, with an appraisal on adipose fin loss in Neotropical armoured catfishes (Teleostei: Loricariidae). Ichthyological Exploration of Freshwaters 27: 67–80.

de Pinna, M. 1991. Concepts and tests of homology in the cladistic paradigm. Cladistics 7: 367–394.

de Pinna, M., and A. Kirovsky. 2011. A new species of sand-dwelling catfish, with a phylogenetic diagnosis of *Pygidianops* Myers (Siluriformes: Trichomycteridae: Glanapteryginae). Neotropical Ichthyology 9: 493–504.

de Pinna, M., J. Zuanon, L. Rapp Py-Daniel, and P. Petry. 2017. A new family of Neotropical freshwater fishes from deep fossorial Amazonian habitat, with a reappraisal of morphological characiform phylogeny (Teleostei: Ostariophysi). Zoological Journal of the Linnean Society 182: 76–106.

Dergam, J.A., et al. 1998. Molecular biogeography of the Neotropical fish *Hoplias malabaricus* (Erythrinidae: Characiformes) in the Iguaçu, Tibagi, and Paraná Rivers. Genetics and Molecular Biology 21: 493–496.

de Santana, C.D., and R.P. Vari. 2010. Electric fishes of the genus *Sternarchorhynchus* (Teleostei, Ostariophysi, Gymnotiformes); phylogenetic and revisionary studies. Zoological Journal of the Linnean Society 159: 223–371.

de Santana, C.D, and W.G.R. Crampton. 2007. Revision of the deep-channel electric fish genus *Sternarchogiton* (Gymnotiformes: Apteronotidae). Copeia 2007: 387–402.

Dobson, D., G. Dickens, and D. Rea. 2001. Terrigenous sediment on Ceara Rise: a Cenozoic record of South American orogeny and erosion. Palaeogeography, Palaeoclimatology, Palaeoecology 165: 215–229.

Donoghue, M., and B. Moore. 2003. Toward an integrative historical biogeography. Integrative and Comparative Biology 43: 261–270.

Eigenmann, C. 1909. The fresh-water fishes of Patagonia and an examination of the Archiplata-Archhelenis theory. *In* W.B. Scott (editor), Reports of the Princeton University Expeditions to Patagonia, 1896–1899: 3: 225–374. Princeton: The University.

Espurt, N., et al. 2007. How does the Nazca Ridge subduction influence the modern Amazonian foreland basin? Geology 35: 515–518.

Evans, K.M., W.G.R. Crampton, and J.S. Albert. 2017. Taxonomic revision of the deep channel electric fish genus *Sternarchella* (Teleostei: Gymnotiformes: Apteronotidae), with descriptions of two new species. Neotropical Ichthyology 15: e160168.

Farias, I., and T. Hrbek. 2008. Patterns of diversification in the discus fishes (Symphysodon spp. Cichlidae) of the Amazon basin. Molecular Phylogenetics and Evolution 49: 32–43.

Feitosa, F., G. Santos, and J. Birindelli. 2011. *Leporinus britskii*: a new anostomid from the Tapajós and Jari drainages, Brazil (Characiformes: Anostomidae). Zootaxa 3120: 55–62.

Fernandes, A.M., M. Cohn-Haft, T. Hrbek, and I.P. Farias. 2014. Rivers acting as barriers for bird dispersal in the Amazon. Revista Brasileira de Ornitologia 22: 363–373.

Ferraris, Jr, C.J., I.J.H. Isbrücker, and H. Nijssen. 1986. *Neblinichthys pilosus*, a new genus and species of mailed catfish from the Rio Baria system, southern Venezuela (Pisces, Siluriformes, Loricariidae). Revue Française d'Aquariologie Herpétologie 13: 69–72.

Ferreira, E., J. Zuanon, B. Forsberg, M. Goulding, and R.B. Ferreira. 2006. Rio Branco peixes, ecologia e conservação dos ambientes aquáticos de Roraima. Manaus: Sociedade Civíl Mamirauá/Amazon Conservation Association/INPA.

Ferreira, K.M. 2007. Análise filogenética e revisão taxonômica do gênero *Knodus* Eigenmann, 1911 (Characiformes: Characidae). Ph.D. dissertation, Universidade de São Paulo, São Paulo.

Fichberg, I., O. Oyakawa, and M. de Pinna. 2014. The end of an almost 70-year wait: a new species of *Spatuloricaria* (Siluriformes: Loricariidae) from the Rio Xingu and Rio Tapajós basins. Copeia 2014: 317–324.

Figueiredo, J., C. Hoorn, P. Van Der Ven, and E. Soares. 2009. Late Miocene onset of the Amazon River and the Amazon deep-sea fan: evidence from the Foz do Amazonas basin. Geology 37: 619–622.

Fink, W., and S. Fink. 1979. Central Amazonia and its fishes. Comparative Biochemistry and Physiology 62A: 13–29.

Fisch-Muller, S. 2003. Subfamily Ancistrinae. *In* R.E. Reis, S.O. Kullander, and C.J. Ferraris (editors), Check list of the freshwater fishes of South and Central America (CLOFFSCA): 373–400. Porto Alegre: EDIPUCRS.

Freitas, M.R.M., P.H.F. Lucinda, and C.A.S. Lucena. 2015. Redescription of *Astyanax novae* Eigenmann, 1911 (Teleostei: Characidae). Ichthyological Exploration of Freshwaters 26: 183–192.

Fricke, R., W.N. Eschmeyer, and R. van der Laan. 2019. Catalog of fishes: genera, species, references: California Academy of Sciences. Internet resource (http://researcharchive.calacademy.org/research/ichthyology/catalog/SpeciesByFamily.asp), accessed January 19, 2019.

Garavello, J., H. Britski, and J. Birindelli. 2014. Redescription of *Leporinus jamesi* (Characiformes: Anostomidae), a poorly known species of *Leporinus* from the lowlands of the central Amazon, Brazil. Neotropical Ichthyology 12: 317–326.

Garutti, V., and P. Venere. 2009. *Astyanax xavante*, a new species of characid from middle Rio Araguaia in the Cerrado region, Central Brazil (Characiformes: Characidae). Neotropical Ichthyology 7: 377–383.

Geritana, A.C.V., and R.C.D. Paiva. 2013. Mapping large-scale river flow hydraulics in the Amazon basin. Water Resources Research 49: 2437–2445.

Géry, J. 1962. Notes on the ichthyology of Surinam and other Guianas. 10. The distribution pattern of the genus *Hemibrycon*, with a description of a new species from Surinam and an incursion into ecotaxonomy. Bulletin of Aquatic Biology 3: 65–80.

Géry, J. 1964. Poissons characoides nouveaux ou non signalés de l'Ilha do Bananal, Brésil. Vie et Milieu 17: 447–471.

Géry, J. 1969. The fresh-water fishes of South America. *In* E.J. Fittkau, J. Illies, H. Klinge, G.H. Schwabe, and H. Sioli (editors), Biogeography and ecology in South America: 328–348. The Hague: Dr. W. Junk.

Géry, J., and V. Mahnert. 1986. A new rummy-nose tetra from the Rio Negro, Brazil: *Hemigrammus bleheri* n. sp. (Characidae, Tetragonopterinae), with comments on Paracheirodon. Tropical Fish Hobbyist 34: 37, 40–41, 44–45, 48–49, 52.

Gibbs, A., and C. Barron. 1993. The geology of the Guiana Shield. New York: Oxford University Press.

Giovannetti, V., M. Toledo-Piza, and N.A. Menezes. 2017. Taxonomic revision of *Galeocharax* (Characiformes: Characidae: Characinae). Neotropical Ichthyology 15: 1–32.

Giuliano-Caetano, L.C. Jorge, O. Moreira-Filho, and L.A.C. Bertollo. 2001. Comparative cytogenetic studies on *Hoplerythrinus unitaeniatus* populations (Pisces, Erythrindae). Cytologia 66: 39–43.

González, M. 2015. Estudo taxonômico das espécies de *Acestrorhynchus* do grupo lacustris, e atualização dos dados de distribuição geográfica de todas as espécies do gênero, para os rios brasileiros. M.Sc. thesis, Universidade de São Paulo, São Paulo.

Goulding, M., M.L. Carvalho, and E.G. Ferreira. 1988. Rio Negro, rich life in poor waters: Amazonian diversity and foodchain ecology as seen through fish communities. The Hague: SPB Academic Publishing.

Goulding, M.J., R. Barthem, and E. Ferreira. 2003. The Smithsonian atlas of the Amazon. Washington: Smithsonian Books.

Grande, L. 1985. The use of paleontology in systematics and biogeography, and a time control refinement for historical biogeography. Paleobiology 11: 234–243.

Guedes, T., R. Sawaya, and C. Nogueira. 2014. Biogeography, vicariance, and conservation of snakes of the neglected and endangered Caatinga region, northeastern Brazil. Journal of Biogeography 41: 919–931.

Harold, A., and R. Mooi. 1994. Areas of endemism, definition and recognition criteria. Systematic Biology. 261–266.

Harris, S., and A. Mix. 2002. Climate and tectonic influences on continental erosion of tropical South America, 0–13 Ma. Geology 30: 447–450.

Hayakawa, E., and D. Rossetti. 2015. Late quaternary dynamics in the Madeira river basin, southern Amazonia (Brazil), as revealed by paleomorphological analysis. Anais da Academia Brasileira de Ciências 87: 29–49.

Hoorn, C. 1994a. An environmental reconstruction of the palaeo-Amazon River system (Middle to Late Miocene, northwestern Amazonia). Palaeogeography, Palaeoclimatology, Palaeoecology 112: 187–238.

Hoorn, C. 1994b. Fluvial paleoenvironments in the intracratonic Amazonas basin (Early Miocene-Early Middle Miocene, Colombia). Palaeogeography, Palaeoclimatology, Palaeoecology 109: 1–54.

Hoorn, C. 1996. Miocene deposits in the Amazonian foreland basin. Science 273 (5271): 122.

Hoorn, C., and F.P. Wesselingh. 2010. Introduction: Amazonia, landscape and species evolution. *In* C. Hoorn and F.P. Wesselingh (editors), Amazonia-landscape and species evolution: a look into the past: 1–6. Oxford: Blackwell Publishing.

Hoorn, C., J. Guerrero, G.A. Sarmiento, and M.A. Lorente. 1995. Andean tectonics as a cause for changing patterns in Miocene northern South America. Geology 23: 237–240.

Hoorn, C., et al. 2017. The Amazon at sea: onset and stages of the Amazon River from a marine record, with special reference to Neogene plant turnover in the drainage basin. Global and Planetary Change 153: 51–65.

Hubert, N., and J. Renno. 2006. Historical biogeography of South American freshwater fishes. Journal of Biogeography 33: 1414–1436.

Hunn, C., and P. Upchurch. 2001. The importance of time/space in diagnosing the causality of phylogenetic events: towards a "chronobiogeographical paradigm." Systematic Biology 50: 391–407.

Ibarra, M., and D. Stewart. 1989. Longitudinal zonation of sandy beach fishes in the Napo River basin, eastern Ecuador. Copeia 1989: 364–381.

Ingenito, L., F. Lima, and P. Buckup. 2013. A new species of *Hyphessobrycon* Durbin (Characiformes: Characidae) form the Rio Juruena basin, central Brazil, with notes on *H. loweae* Costa, and Géry. Neotropical Ichthyology 11: 33–44.

Innocencio, N. 1989. Hidrografia. *In* A. Duarte, T. Filho, and P. Leite (editors), Geografia do Brasil, vol. 1: região centro-oeste: 73–90. Rio de Janeiro: IBGE.

Irion, G., et al. 2010. Development of the Amazon valley during the middle to late quaternary: sedimentological and climatological observations. *In* W. Junk, M. Piedade, F. Wittmann, J. Schöngart, and P. Parolin (editors), Amazonian floodplain forests: ecophysiology, biodiversity and sustainable management: 27–42. Berlin: Springer.

Ito, P. 2013. Revisão taxônomica e distribuição geográfica das espécies de *Crenicichla* gr. *wallacii* Ploeg, 1991. M.Sc. thesis, Instituto Nacional de Pesquisas da Amazônia, Manaus.

Ivanyisky III, J., and J. Albert. 2014. Systematics and biogeography of Sternarchellini (Gymnotiformes: Apteronotidae): diversification of electric fishes in large Amazonian rivers. Neotropical Ichthyology 12: 565–584.

Jégu, M. 1992a. Variations du niveau marin et distribution des poissons d'eau douce en Amazonie orientale. *In* M.-T. Prost (editor), Evolution des littoraux de Guyane et de la zone caraïbe méridionale pendant le quaternaire: 281–297. Paris: ORSTOM.

Jégu, M. 1992b. Influência das alterações climáticas do quaternário sobre a distribuição e evolução dos peixes na Amazônia. *In* Congresso Latino-Americano de Genética: 234–237.

Jégu, M., and P. Keith. 1999. Le bas Oyapock limite septentrionale ou simple étape de la progression de la faune des poissons d'Amazonie occidentale. Comptes Rendus de l'Académie des Sciences, Paris, Sciences de la Vie 322: 1133–1145.

Jerep, F., F. Carvalho, and A. Bertaco. 2011. Geographic distribution of *Hemigrammus ora* (Ostariophysi: Characiformes: Characidae) in the Amazon basin, Brazil. Zoologia (Curitiba) 28: 545–550.

Junk, W.J., M.G.M. Soares, and P.B. Bayley. 2007. Freshwater fishes of the Amazon River basin: their biodiversity, fisheries, and habitats. Aquatic Ecosystem Health and Management 10: 153–173.

Kottelat, M., and J. Freyhof. 2007. Handbook of European freshwater fishes. Berlin: Kottelat, Cornol and Freyhof.

Kullander, S. 1980. A taxonomical study of the genus *Apistogramma* Regan, with a revision of Brazilian and Peruvian species (Teleostei: Percoidei: Cichlidae). Bonner Zoologische Monographien 14: 1–152.

Kullander, S. 1986. Cichlid fishes of the Amazon River drainage of Peru. Stockholm: Swedish Museum of Natural History.

Kullander, S. 1989. *Biotoecus* Eigenmann and Kennedy (Teleostei: Cichlidae): description of a new species from the Orinoco basin and revised generic diagnosis. Journal of Natural History 23: 225–260.

Kullander, S. 2003. Family Cichlidae. *In* R. Reis, S. Kullander, and C.J. Ferraris (editors), Check list of the freshwater fishes of South and Central America (CLOFFSCA): 605–654. Porto Alegre: EDIPUCRS.

Kullander, S. 2011. A review of *Dicrossus foirni* and *Dicrossus warzeli*, two species of cichlid fishes from the Amazon River basin (Teleostei: Cichlidae). Aqua: Journal of Ichthyology and Aquatic Biology 17: 73–94.

Kullander, S., and E. Ferreira. 2006. A review of the South American cichlid genus *Cichla*, with descriptions of nine new species (Teleostei: Cichlidae). Ichthyological Exploration of Freshwaters 17: 289–398.

Kullander, S., and A. Silfvergrip. 1991. Review of the South American cichlid genus *Mesonauta* Günther (Teleostei, Cichlidae) with descriptions of two new species. Revue Suisse de Zoologie 98: 407–448.

Langeani, F. 1996. Estudo filogenético e revisão taxonômica da família Hemiodontidae Boulenger, 1904 (sensu Roberts, 1974) (Ostariophysi, Characiformes). Ph.D. dissertation, Universidade de São Paulo, São Paulo.

Lasso, C.A., et al. 2004. Peces de la cuenca del Río Orinoco. Parte I: lista de especies y distribución por subcuencas. Biota Colombiana 5: 95–158.

Latrubesse, E., and E. Franzinelli. 2002. The Holocene alluvial plain of the middle Amazon River, Brazil. Geomorphology 44: 241–257.

Lehmann, P., and R.E. Reis. 2004. *Callichthys serralabium*: a new species of Neotropical catfish from the Upper Orinoco and Negro rivers (Siluriformes: Callichthyidae). Copeia 2004: 336–343.

Lehmann, A., H. Lazzarotto, and R. Reis. 2014. *Parotocinclus halbothi*, a new species of small armored catfish (Loricariidae: Hypoptopomatinae), from the Trombetas and Marowijne River basins, in Brazil and Suriname. Neotropical Ichthyology 12: 27–33.

Lehner, B., K. Verdin, and A. Jarvis. 2008. New global hydrography derived from spaceborne elevation data. Eos 89: 93.

Lévêque, C., T. Oberdorff, D. Paugy, M.L.J. Stiassny, and P.A. Tedesco. 2008. Global diversity of fish (Pisces) in freshwater. Hydrobiologia 595: 545–567.

Lima, F. 2017. A revision of the cis-Andean species of the genus *Brycon* Müller, and Troschel (Characiformes: Characidae). Zootaxa 4222: 1–189.

Lima, F., and R. Caires. 2011. Peixes da Estação Ecológica Serra Geral do Tocantins, bacias dos rios Tocantins e São Francisco, com observações sobre as implicações biogeográficas das "águas emendadas" dos rios Sapão e Galheiros. Biota Neotropica 11: 1–20.

Lima, F., and L. Malabarba. 2003. *Hyphessobrycon*. *In* R. Reis, S. Kullander, and C.J. Ferraris (editors), Check list of the freshwater fishes of South and Central America (CLOFFSCA): 134–141. Porto Alegre: EDIPUCRS.

Lima, F., and A. Ribeiro. 2011. Continental-scale tectonic controls of biogeography and ecology. *In* J. Albert and R. Reis (editors), Historical biogeography of Neotropical freshwater fishes: 145–164. Berkeley: University of California Press.

Lima, F., H. Britski, and F. Machado. 2007. A new *Moenkhausia* (Characiformes: Characidae) from central Brazil, with comments on the area relationship between the upper Rio Tapajós and upper Rio Paraguai systems. Aqua: Journal of Ichthyology and Aquatic Biology 13: 45–54.

Linke, H., and W. Staeck. 1994. American cichlids I: dwarf cichlids, a handbook for their identification, care and breeding. Melle, Germany: Tetra-Press.

Littmann, M. 2007. Systematic review of the Neotropical shovelnose catfish genus *Sorubim* Cuvier (Siluriformes: Pimelodidae). Zootaxa 1422: 1–29.

Littmann, M.W., M.M. Azpelicueta, J.A. Vanegas-Rios, and J.G. Lundberg. 2015. Holotype-based validation, redescription and continental-scale range extension of the South American catfish species *Hypophthalmus oremaculatus* Nani and Fuster, 1947, with additional information on *Hypophthalmus edentatus* Spix and Agassiz, 1. Proceedings of the Academy of Natural Sciences of Philadelphia 164: 159–176.

López-Fernández, H., and J.S. Albert. 2011. Paleogene Radiations. *In* J. Albert and R. Reis (editors), Historical biogeography of Neotropical freshwater fishes: 105–118. Berkeley: University of California Press.

López-Fernández, H., and D. Taphorn. 2004. *Geophagus abalios*, *G. dicrozoster* and *G. winemilleri* (Perciformes: Cichlidae), three new species from Venezuela. Zootaxa 439: 1–27.

Lucena, C. 2007. Revisão taxonômica das espécies do gênero *Roeboides* grupo-*affinis* (Ostariophysi, Characiformes, Characidae). Iheringia 97: 117–136.

Lucena, Z., and L. Malabarba. 2010. Descrição de nove espécies de *Phenacogaster* (Ostraiophysi: Characiiformes: Characidae) e comentários sobre as demais espécies do gênero. Zoologia (Curitiba) 27: 263–304.

Lujan, N.K., and J. Armbruster. 2011. The Guiana Shield. *In* J. Albert and R. Reis (editors), Historical biogeography of Neotropical freshwater fishes: 211–224. Berkeley: University of California Press.

Lujan, N.K, and J. Birindelli. 2011. A new distinctively banded species of *Pseudolithoxus* (Siluriformes: Loricariidae) from the upper Orinoco River. Zootaxa 2941: 38–46.

Lujan, N.K, J. Armbruster, and M. Sabaj. 2007. Two new species of *Pseudancistrus* from southern Venezuela (Siluriformes: Loricariidae). Ichthyological Exploration of Freshwaters 18: 163–174.

Lujan, N.K., M. Hidalgo, and D.J. Stewart. 2010. Revision of *Panaque* (Panaque), with descriptions of three new species from the Amazon basin (Siluriformes, Loricariidae). Copeia 2010: 676–704.

Lujan, N.K., et al. 2013. Aquatic community structure across an Andes-to-Amazon fluvial gradient. Journal of Biogeography 40: 1715–1728.

Lundberg, J.G. 1997. Fishes of the La Venta fauna: additional taxa, biotic and paleoenvironmental implications. *In* R. Kay, R. Hadden, R. Cifelli, and J. Flynn (editors), Vertebrate paleontology in the neotropics: the miocene fauna of La Venta, Colombia: 67–91. Washington: Smithsonian Press.

Lundberg, J.G. 1998. The temporal context for diversification of Neotropical fishes. *In* L. Malabarba, R.

Reis, R. Vari, C. Lucena, and Z. Lucena (editors), Phylogeny and classification of Neotropical fishes: 67–91. Porto Alegre: EDIPUCRS.

Lundberg, J.G. 2005. *Brachyplatystoma promagdalena*, new species, a fossil goliath catfish (Siluriformes, Pimelodidae) from the Miocene of Colombia, South America. Neotropical Ichthyology 3: 597–605.

Lundberg, J.G., and A. Akama. 2005. *Brachyplatystoma capapretum*: a new species of goliath catfish from the Amazon basin, with a reclassification of allied catfishes. Copeia 2005: 492–516.

Lundberg, J.G., A. Machado-Allison, and R. Kay. 1986. Miocene characid fishes from Colombia: evidence for evolutionary stasis and extirpation in the South American ichthyofauna. Science 234: 208–209.

Lundberg, J.G., O.J. Linares, M.E. Antonio, and P. Nass. 1988. *Phractocephalus hemiliopterus* (Pimelodidae, Siluriformes) from the Upper Miocene Urumaco Formation, Venezuela: a further case of evolutionary stasis and local extinction among South American fishes. Journal of Vertebrate Paleontology 8: 131–138.

Lundberg, J.G., et al. 1998. The stage for Neotropical fish diversification: a history of tropical South American rivers. *In* L.R. Malabarba, R.E. Reis, R.P. Vari, C.A.S. Lucena, and Z.M.S. Lucena (editors), Phylogeny and classification of Neotropical fishes: 13–48. Porto Alegre: EDIPUCRS.

Lundberg, J.G., M. Kottelat, G.R. Smith, M.L.J. Stiassny, and A.C. Gill. 2000. So many fishes, so little time: an overview of recent ichthyological discovery in continental waters. Annals of the Missouri Botanical Garden 87: 26.

Lundberg, J.G., M.H. Sabaj Pérez, W.M. Dahdul, and O.A. Aguilera. 2010. The Amazonian neogene fish fauna. *In* C. Hoorn, and F. Wesselingh (editors), Amazonia, landscape and species evolution: a look into the past: 281–301. Oxford: Blackwell Publishing.

Lundberg, J.G., C. Cox-Fernandes, R. Campos-da-Paz, and J.P. Sullivan. 2013. *Sternarchella calhamazon* n. sp., the Amazon's most abundant species of apteronotid electric fish, with a note on the taxonomic status of *Sternarchus capanemae* Steindachner, 1868 (Gymnotiformes, Apteronotidae). Proceedings of the Academy of Natural Sciences of Philadelphia 162: 157–173.

Mago-Leccia, F. 1994. Electric fishes of the continental waters of America. Caracas: Fundacion para el Desarrollo de las Ciencias Fisicas, Matematicas y Naturales.

Mago-Leccia, F., J. Lundberg, and J. Baskin. 1985. Systematics of the South American freshwater fish genus *Adontosternarchus* (Gymnotiformes, Apteronotidae). Contributions in Science, Museum of Natural History, Los Angeles 358: 1–19.

Marinho, M. 2009. Análise filogenética e revisão taxonômica das espécies de *Moenkhausia* Eigenmann, 1903 do grupo *M. lepidura* (Ostariophysi: Characiformes: Characidae). M.Sc. thesis, Universidade Estadual Paulista, São Paulo, Brazil.

Marinho, M., and J. Birindelli. 2013. Redescription of *Astyanax multidens* Eigenmann, 1908 (Characiformes: Characidae), a small characid of the Brazilian Amazon. Neotropical Ichthyology 11: 45–54.

Marinho, M., and F. Langeani. 2010. *Moenkhausia celibela*: a new species from the Amazon basin, Brazil (Characiformes: Characidae). Journal of Fish Biology 77: 879–889.

Marinho, M., and F. Langeani. 2016. Reconciling more than 150 years of taxonomic confusion: the true identity of *Moenkhausia lepidura*, with a key to the species of the *M. lepidura* group (Characiformes: Characidae). Zootaxa 4107: 338–352.

Marinho, M., and F. Lima. 2009. *Astyanax ajuricaba*: a new species from the Amazon basin in Brazil (Characiformes: Characidae). Neotropical Ichthyology 7: 169–174.

Marinho, M., and N. Menezes. 2017. Taxonomic review of *Copella* (Characiformes: Lebiasinidae) with an identification key for the species. PlosOne 12: e0183069.

Martins, F., and F. Langeani. 2011. *Rhinolekos*, a new genus with three new species of Hypoptopomatinae (Siluriformes: Loricariidae) from upper Rio Paraná. Neotropical Ichthyology 9: 65–78.

Martins, N.F., et al. 2012. Differentiation and evolutionary relationships in *Erythrinus erythrinus* (Characiformes, Erythrinidae): comparative chromosome mapping of repetitive sequences. Reviews in Fish Biology and Fisheries 23: 261–269.

Matamoros, W.A., C.D. McMahanc, P. Chakrabarty, J.S. Albert, and J.F. Schaefer. 2015. Derivation of the freshwater fish fauna of Central America revisited: Myers's hypothesis in the 21st century. Cladistics 31: 177–188.

Mateussi, N. 2015. Revisão taxonômica das espécies cisandinas de *Mylossoma* Eigenmann, and Kennedy, 1903 (Characiformes: Serrasalmidae). M.Sc. thesis, Universidade Estadual de Maringá, Maringá, Paraná, Brazil.

Mattox, G., M. Toledo-Piza, and O. Oyakawa. 2006. Taxonomic study of *Hoplias aimara* (Valenciennes, 1846) and *Hoplias macrophthalmus* (Pellegrin, 1907)

(Ostariophysi, Characiformes, Erythrinidae). Copeia 2006: 516–528.

Mautari, K., and N. Menezes. 2006. Revision of the South American freshwater fish genus *Laemolyta* Cope, 1872 (Ostariophysi: Characiformes: Anostomidae). Neotropical Ichthyology 4: 27–44.

Maxime, E., and J. Albert. 2009. A new species of *Gymnotus* (Gymnotiformes: Gymnotidae) from the Fitzcarrald Arch of southeastern Peru. Neotropical Ichthyology 7: 579–585.

Melo, A. 2001. Relações filogenéticas das sardinhas do gênero *Pellona* Valenciennes (1847) (Clupeomorpha: Pellonidae), com revisão taxonômica das espécies sul-americanas. M.Sc. thesis, Universidade de São Paulo, São Paulo.

Menezes, N. 1969. Systematics and evolution of the tribe Acestrorhynchini (Pisces, Characidae). Arquivos de Zoologia 18: 1–150.

Menezes, N. 1976. On the Cynopotaminae, a new subfamily of Characidae (Osteichthyes, Ostariophysi, Characoidei). Arquivos de Zoologia 28: 1–91.

Menezes, N., and C. Lucena. 2014. A taxonomic review of the species of *Charax* Scopoli, 1777 (Teleostei: Characidae: Characinae) with description of a new species from the Rio Negro bearing superficial neuromasts on body scales, Amazon basin, Brazil. Neotropical Ichthyology 12: 193–228.

Menezes, N., A. Netto-Ferreira, and K. Ferreira. 2009. A new species of *Bryconadenos* (Characiformes: Characidae) from the Rio Curuá, Rio Xingu drainage, Brazil. Neotropical Ichthyology 7: 147–152.

Meza-Vargas, S. 2015. Revisão das espécies de *Creagrutus* Günther (Teleostei Characiformes Characidae) das bacias amazônicas do Escudo Brasileiro. M.Sc. thesis, Museu Nacional do Rio de Janeiro.

Milliman, J., and K. Farnsworth. 2011. River discharge to the coastal ocean: a global synthesis. Cambridge: Cambridge University Press.

Mol, J.H., R.P. Vari, R. Covain, P.W. Willink, and S. Fisch-Muller. 2012. Fishes of Suriname. Cybium, International Journal of Ichthyology 36: 263–292.

Montoya-Burgos, J.-I. 2003. Historical biogeography of the catfish genus *Hypostomus* (Siluriformes: Loricariidae), with implications on the diversification of Neotropical ichthyofauna. Molecular Ecology 12: 1855–1867.

Mora, A., et al. 2010. Tectonic history of the Andes and Sub-Andean zones: implications for the development of the Amazon drainage basin. *In* C. Hoorn and F. Wesselingh (editors), Amazonia, landscape and species evolution: a look into the past: 38–60. Oxford: Wiley-Blackwell Publishing Ltd.

Morrone, J. 2001. Homology, biogeography and areas of endemism. Diversity and Distributions 7: 297–300.

Morrone, J. 2009. Evolutionary biogeography: an integrative approach with case studies. New York: Columbia University Press.

Myers, G. 1938. Fresh-water fishes and West Indian zoogeography. Annual Report of the Board of Regents of the Smithsonian Institution 3465: 339–364.

Myers, G. 1960. The genera and ecological geography of the South American banjo catfishes, family Aspredinidae. Stanford Ichthyological Bulletin 7: 132–139.

Nelson, G. 1994. Homology and systematics. *In* B.K. Hall (editor), Homology: the hierarchical basis of comparative biology: 101–149. San Diego: Academic Press.

Nelson, J.S. 2006. Fishes of the world, 4th ed. Hoboken, NJ: Wiley.

Nelson, G., and N. Platnick. 1981. Systematics and biogeography, cladistics and vicariance. New York: Columbia University Press.

Neto, C. 2014. Sistemática do gênero *Ochmacanthus*: um grupo de bagres neotropicais lepidófagos (Teleostei: Siluriformes: Trichomycteridae). M.Sc. thesis, Universidade de São Paulo, São Paulo.

Netto-Ferreira, A.L., and M.M.F. Marinho. 2013. New species of *Pyrrhulina* (Ostariophysi: Characiformes: Lebiasinidae) from the Brazilian Shield, with comments on a putative monophyletic group of species in the genus. Zootaxa 3664: 369–376.

Netto-Ferreira, A., and R. Vari. 2011. New species of *Steindachnerina* (Characiformes: Curiumatidae) from the Rio Tapajós, Brazil, and review of the genus in the Rio Tapajós and Rio Xingu basins. Copeia 2011: 523–529.

Nielsen, D. 2016. Description of two new species of *Anablepsoides* (Cyprinodontiformes: Cynolebiidae) from Rio Madeira, Amazon drainage, Rondônia state and from Rio Itapecurú basin, Maranhão state, Brazil. Aqua, International Journal of Ichthyology 22: 165–176.

Nijssen, H. 1970. Revision of Surinam catfishes of the genus *Corydoras* Lacépède, 1803 (Pisces, Siluriformes, Callichthyidae). Beaufortia 18: 1–75.

Nijssen, H., and I. Isbrücker. 1976. The South American plated catfish genus *Aspidoras* R. von Ihering, 1907, with descriptions of nine new species from Brazil

(Pisces, Siluriformes, Callichthyidae). Bijdragen tot de Dierkunde 46: 107–131.

Nijssen, H., and I. Isbrücker. 1980. A review of the genus *Corydoras* Lacépède, 1803 (Pisces, Siluriformes, Callichthyidae). Bijdragen tot de Dierkunde 50: 190–220.

Ohara, W. 2010. Revisão taxonômica dos gêneros *Pseudoloricaria* Bleeker, 1862 e Limatulichthys Isbrucker, and Nijssen, 1979 (Siluriformes: Loricariidae). M.Sc. thesis, Instituto Nacional de Pesquisas da Amazônia, Manaus.

Ohara, W., and F. Lima. 2015a. *Hyphessobrycon lucenorum* (Characiformes: Characidae), a new species from the Rio Madeira basin, Rondônia State, Brazil. Zootaxa 3972: 562-572.

Ohara, W., and F. Lima. 2015b. *Moenkhausia uirapuru*, a new species from the upper Rio Guaporé, Chapada dos Parecis, Mato Grosso, Brazil (Teleostei: Characidae). Ichthyological Exploration of Freshwaters 26: 159–170.

Oppenheimer, M., and L.F. Silveira. 2009. A taxonomic review of the Dark-winged Trumpeter *Psophia viridis* (Aves: Gruiformes: Psophiidae). Papéis Avulsos de Zoologia 49: 547–555.

Ota, R.P. 2010. Revisão taxonômica das espécies de *Hemigrammus* Gill, 1858 (Characiformes: Characidae) da bacia do rio Paraguai. M.Sc. thesis, Universidade Estadual de Maringá, Maringá, Paraná, Brazil.

Ota, R.R. 2013. Revisão taxonômica de *Satanoperca* Günther, 1862 (Perciformes, Cichlidae), com a descrição de três espécies novas. M.Sc. thesis, Universidade Estadual de Maringá, Maringá, Paraná, Brazil.

Ota, R.P. 2015. Revisão taxonômica e Filogenia morfológica de *Metynnis* Cope, 1878 (Characiformes: Serrasalmidae). Ph.D. dissertation, Instituto Nacional de Pesquisas da Amazônia, Maringá, Paraná, Brazil.

Ota, R.P., F. Lima, and C. Pavanelli. 2014. A new species of *Hemigrammus* Gill, 1858 (Characiformes: Characidae) from the Rio Madeira and Rio Paraguai basins, with a redescription of *H. lunatus*. Neotropical Ichthyology 12: 265–279.

Ota, R.P., L. Py-Daniel, and M. Jégu. 2016. A new silver dollar species of *Metynnis* Cope, 1878 (Characiformes: Serrasalmidae) from northwestern Brazil and southern Venezuela. Neotropical Ichthyology 14: e160023.

Oyakawa, O., and G. Mattox. 2009. Revision of the Neotropical trahiras of the *Hoplias lacerdae* species-group (Ostariophysi: Characiformes: Erythrinidae) with descriptions of two new species. Neotropical Ichthyology 7: 117–140.

Pastana, M., and F. Dagosta. 2014. *Moenkhausia rubra*, a new species from Rio Juruena, upper Rio Tapajós basin, Brazil (Characiformes: Characidae). Neotropical Ichthyology 12: 389–396.

Patterson, C. 1981. Methods of paleobiogeography. *In* G. Nelson, and D.E. Rosen (editors), Vicariance biogeography: a critique: 446–489. New York: Columbia University Press.

Patton, J., M. Silva, and J. Malcolm. 2000. Mammals of the Rio Jurua and the evolutionary and ecological diversification of Amazonia. Bulletin of the American Museum of Natural History 244: 1–306.

Pearson, N. 1937. The fishes of the Beni-Mamoré and Paraguay basin, and a discussion of the origin of the Paraguayan fauna. Proceedings of the California Academy of Sciences 23: 99–114.

Pires, T.H.S., T.B. Farago, D.F. Campos, G.M. Cardoso, and J. Zuanon. 2016. Traits of a lineage with extraordinary geographical range: ecology, behavior and life-history of the sailfin tetra *Crenuchus spilurus*. Environmental Biology of Fishes 99: 925–937.

Planquette, P., P. Keith, and P.-Y. Le Bail. 1996. Atlas des poissons d'eau douce de Guyane (tome 1). Paris: Muséum National d'Histoire Naturelle.

Platnick, N., and G. Nelson. 1978. A method of analysis for historical biogeography. Systematic Zoology 27: 1–16.

Ploeg, A. 1991. Revision of the South American cichlid genus *Crenicichla* Heckel, 1840, with description of 15 new species and consideration on species groups, phylogeny and biogeography (Pisces, Perciformes, Cichlidae). Ph.D. dissertation, Universiteit van Amsterdam.

Potter, P. 1997. The Mesozoic and Cenozoic paleodrainage of South America: a natural history. Journal of South American Earth Sciences 10: 331–343.

Poulsen, A.F., et al. 2004. Distribution and ecology of some important riverine fish species of the Mekong River basin Phnom Penh, Cambodia.

Queiroz, L.J., et al. 2013. Peixes do rio Madeira. São Paulo: Santo Antônio Energia.

Quevedo, R. 2006. Estudo taxonômico e filogenético da subfamília Paragoniatinae Géry (Characiformes: Characidae). Ph.D. Dissertation, Universidade Federal do Rio Grande do Sul, Porto Alegre, R.S., Brazil.

Ramirez, J.L., J.L.O. Birindelli, and P.M. Galetti. 2017. A new genus of Anostomidae (Ostariophysi: Chara-

ciformes): diversity, phylogeny and biogeography based on cytogenetic, molecular and morphological data. Molecular Phylogenetics and Evolution 107: 308–323.

Ramos, R. 2003. Systematic review of *Apionichthys* (Pleuronectiformes: Achiridae), with description of four new species. Ichthyological Exploration of Freshwaters 14: 97–126.

Ramos, T.P.A., R.T.C. Ramos, and S. Ramos. 2014. Ichthyofauna of the Parnaíba river basin, northeastern Brazil. Biota Neotropica 14: 1–8.

Ray, C., and J. Armbruster. 2016. The genera *Isorineloricaria* and *Aphanotorulus* (Siluriformes: Loricariidae) with description of a new species. Zootaxa 4072: 501–539.

Reis, R. 1989. Systematic revision of the Neotropical characid subfamily Stethaprioninae (Pisces, Characiformes). Comunicações do Museu de Ciências de PUCRS 2: 3–86.

Reis, R. 1997. Revision of the Neotropical catfish genus *Hoplosternum* (Ostariophysi: Siluriformes: Callichthyidae), with the description of two new genera and three new species. Ichthyological Exploration of Freshwaters 7: 299–326.

Reis, R., and L. Malabarba. 1988. Revision of the Neotropical cichlid genus *Gymnogeophagus* Ribeiro, 1918, with descriptions of two new species (Pisces, Perciformes). Revista Brasileira de Zoologia 4: 259–305.

Reis, R., et al. 2016. Fish biodiversity and conservation in South America. Journal of Fish Biology 89: 12–47.

Retzer, M., L. Nico, and F. Provenzano. 1999. Two new species of *Acestridium* (Siluriformes: Loricariidae) from southern Venezuela, with observations on camouflage and color change. Ichthyological Exploration of Freshwaters 10: 313–326.

Ribeiro, A. 2006. Tectonic history and the biogeography of the freshwater fishes from the coastal drainages of eastern Brazil: an example of faunal evolution associated with a divergent continental margin. Neotropical Ichthyology 4: 225–246.

Ribeiro, A., and N. Menezes. 2015. Phylogenetic relationships of the species and biogeography of the characid genus *Oligosarcus* Günther, 1864 (Ostariophysi, Characiformes, Characidae). Zootaxa 3949: 41–81.

Ribeiro, A.C., et al. 2013. Distributions and phylogeographic data of rheophilic freshwater fishes provide evidences on the geographic extension of a central-Brazilian Amazonian palaeoplateau in the area of the present day Pantanal wetland. Neotropical Ichthyology 11: 319–326.

Ribeiro, F.R.V., L.H.R. Py-Daniel, and S.J. Walsh. 2017. Taxonomic revision of the South American catfish genus *Ageneiosus* (Siluriformes: Auchenipteridae) with the description of four new species Journal of Fish Biology 90: 1388–1478.

Roberts, T. 1972. Ecology of fishes in the Amazon and Congo basins. Bulletin of the Museum of Comparative Zoology 143: 117–147.

Robinson, H.W., and T.M. Buchanan. 1988. Fishes of Arkansas. Fayetteville: University of Arkansas Press.

Rocha, L. 2003. Patterns of distribution and processes of speciation in Brazilian reef fishes. Journal of Biogeography 30: 1161–1171.

Roddaz, M., J. Viers, S. Brusset, P. Baby, and G. Hérail. 2005. Sediment provenances and drainage evolution of the neogene Amazonian foreland basin. Earth and Planetary Science Letters 239: 57–78.

Rosen, D. 1978. Vicariant patterns and historical explanation in biogeography. Systematic Zoology 27: 159–188.

Rossetti, D., P. De Toledo, and A. Góes. 2005. New geological framework for western Amazonia (Brazil) and implications for biogeography and evolution. Quaternary Research 63: 78–89.

Roxo, F.F., L.E. Ochoa, G.S.C. Silva, and C. Oliveira. 2015. *Rhinolekos capetinga*: a new cascudinho species (Loricariidae, Otothyrinae) from the Rio Tocantins basin and comments on its ancestral dispersal route. ZooKeys 481: 109–130.

Ruiz, W. 2015. Taxonomia, filogenia e biogeografia do gênero *Colomesus* Gill, 1885 (Tetraodontiformes: Tetraodontidae). Ph.D. dissertation, Universidade de São Paulo, São Paulo.

Ruiz, W., and O. Shibatta. 2010. A new species of *Microglanis* (Siluriformes, Pseudopimelodidae) from lower Rio Tocantins basin, Pará, Brazil, with description of superficial neuromasts and pores of lateral line system. Zootaxa 2632: 53–66.

Ruokolainen, K., G.M. Moulatlet, G. Zuquim, C. Hoorn, and H. Tuomisto. 2018. River network rearrangements in Amazonia Shake biogeography and civil security. Preprints 2018090168: 1–16.

Sabaj, M.H. 2005. Taxonomic assessment of *Leptodoras* (Siluriformes: Doradidae) with descriptions of three new species. Neotropical Ichthyology 3: 637–678.

Sabaj, M.H., and M.A. Hernández. 2017. Taxonomic assessment of the hard-nosed thornycats (Siluriformes: Doradidae: *Trachydoras* Eigenmann 1925) with description of *Trachydoras gepharti*, n. sp. Pro-

ceedings of the Academy of Natural Sciences of Philadelphia 166: 1–53.

Sabaj Pérez, M., O. Aguilera, and J. Lundberg. 2007. Fossil catfishes of the families Doradidae and Pimelodidae (Teleostei: Siluriformes) from the Miocene Urumaco Formation of Venezuela. Proceedings of the Academy of Natural Sciences of Philadelphia 156: 157–194.

Sabaj, M.H., D.C. Taphorn, and O.E. Castillo. 2008. Two new species of thicklip thornycats, genus *Rhinodoras* (Teleostei: Siluriformes: Doradidae). Copeia 1: 209–226.

Sabaj Pérez, M.H., H. Mariangeles Arce, L.M. Sousa, and J.L.O. Birindelli. 2014. *Nemadoras cristinae*, new species of thorny catfish (Siluriformes: Doradidae) with redescriptions of its congeners. Proceedings of the Academy of Natural Sciences of Philadelphia 163: 133–178.

Sacek, V. 2014. Drainage reversal of the Amazon River due to the coupling of surface and lithospheric processes. Earth and Planetary Science Letters 401: 301–312.

Saint-Paul, U., et al. 2000. Fish communities in central Amazonian white- and blackwater floodplains. Environmental Biology of Fishes 57: 235–250.

Santos, G., M. Jégu, and A. Lima. 1996. Novas ocorrências de *Leporinus pachycheilus* Britski, 1976 e descrição de uma espécie nova do mesmo grupo na Amazônia Brasilieira (Osteichthyes, Anostomidae). Acta Amazonica 26: 265–279.

Sarkar, U.K., et al. 2012. Freshwater fish biodiversity in the River Ganga (India): changing pattern, threats and conservation perspectives. Reviews in Fish Biology and Fisheries 22: 251–272.

Schaefer, C.E.R., and J. Dalrymple. 1996. Pedogenesis and relict properties of soils with columnar structure from Roraima, north Amazonia. Geoderma 71: 1–17.

Schaefer, S. 2011. The Andes riding the tectonic uplift. *In* J.S. Albert and R.E. Reis (editors), Historical biogeography of Neotropical freshwater fishes: 259–278. Berkeley: University of California Press.

Schaefer, S., and J. Arroyave. 2010. Rivers as islands: determinants of the distribution of Andean astroblepid catfishes. Journal of Fish Biology 77: 2373–2390.

Schaefer, S., S. Weitzman, and H. Britski. 1989. Review of the Neotropical catfish genus *Scoloplax* (Pisces: Loricarioidea: Scoloplacidae) with comments on reductive characters in phylogenetic analysis. Proceedings of the Academy of Natural Sciences of Philadelphia 141: 181–211.

Schindler, I. 2003. Die Gattung *Mesonauta*. 2. *Mesonauta guyanae* Schindler, 1998. DCG-informationen 34: 145–151.

Schindler, I. 2005. Die Gattung *Mesonauta* – 8. *Mesonauta festivus*. DCG-informationen 36: 233–238.

Schultz, L. 1967. Review of South American freshwater angelfishes – genus *Pterophyllum*. Proceedings of the United States National Museum 120: 1–9.

Serra, J., and F. Langeani. 2015. A new *Hasemania* Ellis from the upper Rio Paraná basin, with the redescription of *Hasemania crenuchoides* Zarske, and Géry (Characiformes: Characidae). Neotropical Ichthyology 13: 479–486.

Shibatta, O.A., and R.P. Vari. 2017. A new genus of Neotropical rheophilic catfishes, with four new species (Teleostei: Siluriformes: Pseudopimelodidae). Neotropical Ichthyology 15: e160132.

Silva, D.D., S.S.R. Milhomem, A.C.P. de Souza, J.C. Pieczarka, and C.Y. Nagamachi. 2008. A conserved karyotype of *Sternopygus macrurus* (Sternopygidae, Gymnotiformes) in the Amazon region: differences from other hydrographic basins suggest cryptic speciation. Micron 39: 1251–1254.

Da Silva, J.P.C.B., and M.R. De Carvalho. 2015. Systematics and morphology of *Potamotrygon orbignyi* (Castelnau, 1855) and allied forms (Chondrichthyes: Myliobatiformes: Potamotrygonidae) Zootaxa 3982: 1–82.

Silva-Santos, R., J.L. Ramirez, P.M. Galetti, and P.D. Freitas. 2018. Molecular evidences of a hidden complex scenario in *Leporinus* cf. *friderici*. Frontiers in Genetics 9: 1–9.

Silveira, L.G.G., F. Langeani, W.J. da Graça, C.S. Pavanelli, and P.A. Buckup. 2008. *Characidium xanthopterum* (Ostariophysi: Characiformes: Crenuchidae): a new species from the central Brazilian Plateau. Neotropical Ichthyology 6: 169–174.

Sioli, H. 1984. The Amazon and its main affluents: hydrography, morphology of the river courses, and river types. *In* H. Sioli (editor), The Amazon: limnology and landscape ecology: 127–165. Boston: Dr. W. Junk Publishers.

Slobodian, V. 2013. Taxonomia, sistemática e biogeografia de *Brachyrhamdia* Myers, 1927 (Siluriformes: Heptapteridae), com uma investigação sobre seu mimetismo com outros siluriformes. M.Sc. thesis, Universidade de São Paulo, São Paulo.

Slobodian, V. 2017. Taxonomic revision of *Pimelodella* Eigenmann and Eigenmann, 1888 (Siluriformes: Heptapteridae): an integrative proposal to delimit species using a multidisciplinary strategy.

Ph.D. dissertation, Universidade de São Paulo, São Paulo.

Snoeks, J., I.J. Harrison, and M.L.J. Stiassny. 2011. The status and distribution of freshwater fishes. *In* W. Darwall, K. Smith, D. Allen, R. Holland, I. Harrison, and E. Brooks (editors), The diversity of life in African freshwaters: underwater, under threat. An analysis of the status and distribution of freshwater species throughout mainland Africa: 42–91. Gland, Switzerland: IUCN.

Soares, E. 2007. Depósitos pleistocenos da região de confluência dos rios Negro e Solimões, Amazonas. Ph.D. dissertation, Universidade de São Paulo, São Paulo.

Sousa, L.M, and L.H. Rapp Py-Daniel. 2005. Description of two new species of *Physopyxis* and redescription of *P. lyra* (Siluriformes: Doradidae). Neotropical Ichthyology 3: 625–636.

Souza, L.S., J.W. Armbruster, and D.C. Wernecke. 2012. The influence of the Rupununi portal on distribution of freshwater fish in the Rupununi district, Guyana. Cybium, International Journal of Ichthyology 36 (1): 31–43.

Souza-Lima, R. 2003. Revisão taxonômica do gênero *Aphyocharax* Günther, 1868 (Aphyocharacinae, Characidae, Ostariophysi). Ph.D. dissertation, Universidade de São Paulo, São Paulo.

Staeck, W., and I. Schindler. 2007. Description of *Laetacara fulvipinnis* sp. n. (Teleostei: Perciformes: Cichlidae) from the upper drainages of the Rio Orinoco and Rio Negro in Venezuela. Vertebrate Zoology 51: 63–71.

Stewart, D. 1985. A review of the South American catfish tribe Hoplomyzontini (Pisces, Aspredinidae), with descriptions of new species from Ecuador. Fieldiana Zoology (new series) 25: 1–19.

Stewart, D., and M. Pavlik. 1985. Revision of *Cheirocerus* (Pisces: Pimelodidae) from tropical freshwaters of South America. Copeia 2: 356–367.

Stokes, M.F., S.L. Goldberg, and J.T. Perron. 2018. Ongoing river capture in the Amazon. Geophysical Research Letters 45: 5545–5552.

Szumik, C.A., F. Cuezzo, P.A. Goloboff, and A.E. Chalup. 2002. An optimality criterion to determine areas of endemism. Systematic Biology 51: 806–816.

Tagliacollo, V.A., F.F. Roxo, S.M. Duke-Sylvester, C. Oliveira, and J.S. Albert. 2015. Biogeographical signature of river capture events in Amazonian lowlands. Journal of Biogeography 42: 2349–2362.

Teixeira, S.G., and E.A.A. Soares. 2011. Uso de imagens multi-sensores na identificação de paleocanais do Rio Solimões nas regiões de Anori, Codajás e Beruri, Amazônia Ocidental. *In* Anais XV Simpósio Brasileiro de Sensoriamento Remoto (SBSR). Curitiba, PR, Brazil.

Tencatt, L., and W. Ohara. 2016. A new long-snouted species of *Corydoras* Lacépède, 1803 (Siluriformes: Callichthyidae) from the Rio Madeira basin. Zootaxa 4144: 430–442.

Toledo-Piza, M. 2000a. The Neotropical fish subfamily Cynodontinae (Teleostei: Ostariophysi: Characiformes): a phylogenetic study and a revision of *Cynodon* and *Rhaphiodon*. American Museum Novitates 3286: 1–88.

Toledo-Piza, M. 2000b. Two new *Heterocharax* species (Teleostei: Ostariophysi: Characidae), with a redescription of *H. macrolepis*. Ichthyological Exploration of Freshwaters 11: 289–304.

Toledo-Piza, M., N. Menezes, and G. Santos. 1999. Revision of the Neotropical fish genus *Hydrolycus* (Ostariophysi: Cynodontinae) with the description of two new species. Ichthyological Exploration of Freshwaters 10: 255–280.

Torres, R.A., J.J. Roper, F. Foresti, and C. Oliveira. 2005. Surprising genomic diversity in the Neotropical fish *Synbranchus marmoratus* (Teleostei: Synbranchidae): how many species? Neotropical Ichthyology 3: 277–284.

Upchurch, P., and C. Hunn. 2002. Time, the neglected dimension in cladistic biogeography. Geobios 35: 277–286.

Upchurch, P., C. Hunn, and D. Norman. 2002. An analysis of dinosaurian biogeography: evidence for the existence of vicariance and dispersal patterns caused by geological events. Proceedings of the Royal Society of London, Series B 269: 613–621.

van der Sleen, P., and J.S. Albert. 2017. Field guide to the fishes of the Amazon, Orinoco, and Guianas. Princeton: Princeton University Press.

Varella, H., S. Kullander, and F. Lima. 2012. *Crenicichla chicha*, a new species of pike cichlid (Teleostei: Cichlidae) from the Rio Papagaio, upper Rio Tapajós basin, Mato Grosso, Brazil. Neotropical Ichthyology 10: 233–244.

Vari, R.P. 1984. Systematics of the Neotropical characiform genus *Potamorhina* (Pisces: Characiformes). Smithsonian Contributions to Zoology 400: 1–36.

Vari, R.P. 1988. The curimatidae, a lowland Neotropical fish family (Pisces: Characiformes); distribution, endemism, and phylogenetic biogeography. *In* P.E. Vanzolini and W.R. Heyer (editors), Proceedings of a workshop on Neotropical distribution patterns:

343–377. Rio de Janeiro: Academia Brasileira de Ciências.

Vari, R.P. 1989a. Systematics of the Neotropical characiform genus *Curimata* Bosc (Pisces: Characiformes). Smithsonian Contributions to Zoology 474: 1–63.

Vari, R.P. 1989b. Systematics of the Neotropical characiform genus *Psectrogaster* Eigenmann and Eigenmann (Pisces: Characiformes). Smithsonian Contributions to Zoology 481: 1–43.

Vari, R.P. 1991. Systematics of the Neotropical characiform genus *Steindachnerina* Fowler (Pisces, Ostariophysi). Smithsonian Contributions to Zoology 507: 1–118.

Vari, R.P. 1992a. Systematics of the Neotropical characiform genus *Cyphocharax* Fowler (Pisces, Ostariophysi). Smithsonian Contributions to Zoology 529: 1–137.

Vari, R.P. 1992b. Systematics of the Neotropical characiform genus *Curimatella* Eigenmann and Eigenmann (Pisces, Ostariophysi), with summary comments on the Curimatidae. Smithsonian Contributions to Zoology 533: 1–48.

Vari, R.P. 1995. The Neotropical fish family Ctenoluciidae (Teleostei: Ostariophysi: Characiformes): supra and intrafamilial phylogenetic relationships, with a revisionary study. Smithsonian Contributions to Zoology 564: 1–97.

Vari, R.P., and J. Ferraris, CJ. 1998. The Neotropical catfish genus *Epapterus* Cope (Siluriformes: Auchenipteridae): a reappraisal. Proceedings of the biological society of Washington 111: 992–1007.

Vari, R.P., and A. Harold. 2001. Phylogenetic study of the Neotropical fish genera *Creagrutus* Günther and *Piabina* Reinhardt (Teleostei: Ostariophysi: Characiformes), with revision of the cis-Andean species. Smithsonian Contributions to Zoology 613: 1–239.

Vari, R.P., and H. Ortega. 2000. *Attonitus*, a new genus of sexually dimorphic characiforms (Ostariophysi: Characidae) from western Amazonia; a phylogenetic definition and description of three new species. Ichthyological Exploration of Freshwaters 11: 113–140.

Vari, R.P., and A. Williams. 1987. Headstanders of the Neotropical anostomid genus *Abramites* (Pisces: Characiformes: Anostomidae). Proceedings of the Biological Society of Washington 100: 89–103.

Vari, R.P., R. Castro, and S. Raredon. 1995. The Neotropical fish family Chilodontidae (Teleostei: Characiformes): a phylogenetic study and a revision of Caenotropus Günther. Smithsonian Contributions to Zoology 577: 1–32.

Vari, R.P., C.J. Ferraris, Jr., and M.C.C. de Pinna. 2005. The Neotropical whale catfishes (Siluriformes: Cetopsidae: Cetopsinae), a revisionary study. Neotropical Ichthyology 3 (2): 127–238.

Vari, R.P., C. de Santana, and W. Wosiacki. 2012. South American electric knifefishes of the genus *Archolaemus* (Ostariophysi, Gymnotiformes): undetected diversity in a clade of rheophiles. Zoological Journal of the Linnean Society 165: 670–699.

Vari, R.P, B.F. Melo, and C. Oliveira. 2016. *Protocheirodon*, a new genus of Characidae (Teleostei: Characiformes) with the redescription of the poorly known *Protocheirodon pi*. Neotropical Ichthyology 14: e150154.

Venticique, E., et al. 2016. An explicit GIS-based river basin framework for aquatic ecosystem conservation in the Amazon ecosystem conservation in the Amazon. Earth System Science 8: 651–661.

Vera-Alcaraz, H., C. Pavanelli, and C. Zawadsizki. 2012. Taxonomic revision of the *Rineloricaria* species (Siluriformes: Loricariidae) from the Paraguay River basin Neotropical Ichthyology 10 (2): 285–311.

Wallace, A. 1889. A narrative of travels on the Amazon and Rio Negro, with an account of the native tribes, and observations on the climate, geology, and natural history of the Amazon valley. London: Ward Lock, and Co.

Walsh, S., F. Ribeiro, and L. Py-Daniel. 2015. Revision of *Tympanopleura* Eigenmann (Silurifores: Auchenipteridae) with description of two new species. Neotropical Ichthyology 13: 1–46.

Webb, S.D. 1995. Biological implications of the Middle Miocene Amazon Seaway. Science 269: 361–362.

Weitzman, S., and J. Géry. 1981. The relationships of the South American pygmy characoid fishes of the genus *Elachocharax*, with a redescription of *Elachocharax junki* (Teleostei: Characidae). Proceedings of the Biological Society of Washington 93: 887–913.

Weitzman, S., and L. Palmer. 1997. A new species of *Hyphessobrycon* (Teleostei: Characidae) from the Neblina region of Venezuela and Brazil, with comments on the putative "rosy tetra clade." Ichthyological Exploration of Freshwaters 7: 209–242.

Weitzman, S.H., S. Fink, A. Machado-Allison, and R. Royero. 1994. A new genus and species of Glandulocaudinae (Teleostei: Characidae) from southern Venezuela. Ichthyological Exploration of Freshwaters 5: 45–64.

Wernecke, D.C., M.H. Sabaj Pérez, N.K. Lujan, and J.W. Armbruster. 2005. *Bryancistrus demantoides* and *Hemiancistrus subviridis*, two new uniquely colored species of catfishes from Venezuela (Siluriformes: Loricariidae). Neotropical Ichthyology 3: 533–542.

Wesselingh, F. 2006. Molluscs from the Miocene Pebas Formation of Peruvian and Colombian Amazonia. Scripta Geologica 133: 19–290.

Wesselingh, F., and C. Hoorn. 2011. Geological development of Amazon and Orinoco basins. *In* J. Albert and R. Reis (editors), Historical biogeography of Neotropical freshwater fishes: 59–67. Berkeley: University of California Press.

Wesselingh, F., and J.A. Salo. 2006. A Miocene perspective on the evolution of the Amazonian biota. Scripta Geologica 133: 439–458.

Whitehead, P. 1985. FAO species catalogue, vol. 7. Clupeoid fishes of the world (Suborder Clupeoidei). An annotated and illustrated catalogue of the herrings, sardines, pilchards, anchovies, and wolf-herrings. Part 1. Chirocentridae, Clupeidae, and Pristigasteridae. FAO Fisheries Synopsis 125: 1–303.

Whittaker, R.J., et al. 2005. Conservation biogeography: assessment and prospect. Diversity and Distributions 11: 3–23.

Wilkinson, M., L. Marshall, and J. Lundberg. 2006. River behavior on megafans and potential influences on diversification and distribution of aquatic organisms. Journal of South American Earth Sciences 21: 151–172.

Wilkinson, M.J., L.G. Marshall, J.G. Lundberg, and M.H. Kreslavsky. 2010. Megafan environments in northern South America and their impact on Amazon Neogene aquatic ecosystems. *In* C. Hoorn and F.P. Wesselingh (editors), Amazonia, landscape and species evolution: a look into the past: 162–184. Oxford: Wiley-Blackwell.

Willis, S.C., et al. 2010. The Casiquiare river acts as a corridor between the Amazonas and Orinoco river basins: biogeographic analysis of the genus *Cichla*. Molecular Ecology 19: 1014–1030.

Winemiller, K., and S. Willis. 2011. The Vaupes Arch and Casiquiare Canal barriers and passages. *In* J. Albert and R. Reis (editors), Historical biogeography of Neotropical freshwater fishes: 225–242. Berkeley: University of California Press.

Winemiller, K.O., H. López-Fernández, D.C. Taphorn, L.G. Nico, and A. Barbarino-Duque. 2008. Fish assemblages of the Casiquiare River, a corridor and zoogeographical filter for dispersal between the Orinoco and Amazon basins. Journal of Biogeography 35: 1551–1563.

Witte, F., M.J.P. van Oijen, and F. Sibbing. 2009. Fish fauna of the Nile. *In* H.J. Dumont (editor), The Nile: origin, environments, limnology and human use: 647–675. [Dordrecht]: Springer.

Wosiacki, W.B., D.P. Coutinho, and L.F. de Assis Montag. 2011. Description of a new species of sand-dwelling catfish of the genus *Stenolicmus* (Siluriformes; Trichomycteridae). Zootaxa 2752: 62–68.

Zanata, A. 1997. *Jupiaba*, um novo gênero de Tetragonopterinae com osso pélvico em forma de espinho (Characidae, Characiformes). Iheringia, Série Zoologia (Porto Alegre) 83: 99–136.

Zanata, A., and M. Toledo-Piza. 2004. Taxonomic revision of the South American fish genus *Chalceus* Cuvier (Teleostei: Ostariophysi: Characiformes) with the description of three new species. Zoological Journal of the Linnean Society 140: 103–135.

Zawadzki, C., J. Birindelli, and F. Lima. 2008. A new pale-spotted species of *Hypostomus* Lacépède (Siluriformes: Loricariidae) from the rio Tocantins and rio Xingu basins in central Brazil. Neotropical Ichthyology 6: 395–402.

APPENDIX 1

Taxonomic List of Amazonian Fish Species

Definition of Amazonian regions follows Dagosta and de Pinna (2017). List updated by the end of 2018.
Symbols: *species exclusive to the Amazon basin; ** species poorly known or with vague distribution records.

Taxon	Species	Occurrence
Carcharhiniformes	**1**	
Carcharhinidae	1	
Carcharhinus leucas		Lower Xingu, Amazonas main channel, lower Orinoco
Pristiformes	**2**	
Pristidae	2	
Pristis pectinata		Amazonas Estuary, Essequibo, lower Orinoco, Cauca-Magdalena-Sinu
Pristis perotteti		Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Maracaibo, Cauca-Magdalena-Sinu, Atrato
Myliobatiformes	**27**	
Potamotrygonidae	27	
*Heliotrygon gomesi**		Endemic – Amazonas main channel
*Heliotrygon rosai**		Purus, Amazonas main channel, Amazonas Estuary
Paratrygon aiereba		Upper Tocantins, Araguaia, upper Xingu, lower Xingu, Teles Pires, Tapajós, Guaporé, middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Negro, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
*Plesiotrygon iwamae**		Middle-lower Madeira, Napo-Ambyiacu, Amazonas main channel
*Plesiotrygon nana**		Ucayali, Amazonas main channel
*Potamotrygon adamastor**		Endemic – Branco
*Potamotrygon albimaculata**		Restricted to Tapajós basin (Teles Pires, Tapajós)
Potamotrygon amandae		Mamoré, Guaporé, Paraná-Paraguay
*Potamotrygon amazona**		Juruá, Jutaí, Negro
*Potamotrygon constellata***		Amazonas main channel
Potamotrygon falkneri		Guaporé, Beni-Madre de Dios, Madeira Shield Tributaries, Trombetas, Paraná-Paraguay
*Potamotrygon garmani**		Upper Tocantins, Teles Pires
*Potamotrygon henlei**		Restricted to Tocantins basin (upper Tocantins, Araguaia, lower Tocantins)
Potamotrygon humerosa		Tapajós, middle-lower Madeira, Jutaí, Negro, Amazonas main channel, Capim
*Potamotrygon jabuti**		Restricted to Tapajós basin (Teles Pires, Tapajós, Jamanxim)
*Potamotrygon leopoldi**		Restricted to Xingu basin (upper Xingu, lower Xingu)
*Potamotrygon limai**		Endemic – Middle-lower Madeira
Potamotrygon motoro		Upper Tocantins, Araguaia, lower Tocantins, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Juruá, Ucayali, Marañon-Nanay, Putumayo, Negro, Branco, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Potamotrygon ocellata***		

Taxon	Species	Occurrence
Potamotrygon orbignyi		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós, Madeira Shield Tributaries, Purus, Tefé, Juruá, Ucayali, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Potamotrygon pantanensis		Guaporé, Paraná-Paraguay
*Potamotrygon rex**		Endemic – upper Tocantins
Potamotrygon schroederi		Japurá, Negro, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Potamotrygon scobina**		Lower Tocantins, middle-lower Madeira, Madeira Shield Tributaries, Urubu-Uatumã, Amazonas main channel, Amazonas Estuary
*Potamotrygon tatianae**		Beni-Madre de Dios, Madeira Shield Tributaries
*Potamotrygon tigrina**		Endemic – Amazonas main channel
*Potamotrygon wallacei**		Endemic – Negro
Osteoglossiformes	**5**	
Arapaimidae	3	
*Arapaima agassizii***		
Arapaima gigas		Araguaia, lower Tocantins, lower Xingu, middle-lower Madeira, Purus, Juruá, Putumayo, Japurá, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, Essequibo
*Arapaima leptosoma**		Amazonas main channel
Osteoglossidae	2	
Osteoglossum bicirrhosum		Araguaia, lower Tocantins, lower Xingu, Teles Pires, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Purus, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Corentyne-Demerara, Essequibo, upper Orinoco
Osteoglossum ferreirai		Branco, upper Orinoco
Anguiliformes	**1**	
Ophichthidae	1	
Stictorhinus potamius		Lower Tocantins, lower Orinoco
Clupeifomes	**18**	
Clupeidae	1	
Rhinosardinia amazonica		Amazonas main channel, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco
Engraulidae	12	
*Amazonsprattus scintilla**		Lower Xingu, Teles Pires, Tapajós, Madeira Shield Tributaries, Purus, Negro, Branco, Urubu-Uatumã
Anchovia surinamensis		Lower Tocantins, upper Xingu, lower Xingu, Teles Pires, middle-lower Madeira, Branco, Parnaíba, Itapicuru-Mearim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
*Anchoviella alleni**		Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Coari-Urucu, Ucayali
Anchoviella carrikeri		Araguaia, upper Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Ucayali, Marañon-Nanay, Negro, Branco, Amazonas main channel, Capim

Taxon	Species	Occurrence
Anchoviella guianensis		Araguaia, Anapu, Teles Pires, Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Purus, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Parnaíba, Capim, Maroni-Approuague, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Anchoviella hernanni**		Beni-Madre de Dios, Ucayali, Marañon-Nanay
Anchoviella jamesi		Araguaia, lower Tocantins, Teles Pires, Tapajós, Jamanxim, middle-lower Madeira, Tefé, Negro, Branco, Trombetas, Amazonas main channel, Capim, Essequibo, lower Orinoco, upper Orinoco
*Anchoviella juruasanga**		Lower Tocantins, Tapajós, Jamanxim, middle-lower Madeira, Madeira Shield Tributaries, Purus, Negro, Trombetas, Jari, Amazonas main channel
*Anchoviella nattereri***		
Jurengraulis juruensis		Mamoré, middle-lower Madeira, Juruá, Putumayo, Branco, Trombetas, Amazonas main channel, Essequibo
Lycengraulis batesii		Araguaia, lower Tocantins, lower Xingu, Tapajós, Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Juruá, Japurá, Branco, Trombetas, Amazonas main channel, Parnaíba, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco, upper Orinoco, Apure
*Pterengraulis atherinoides**		Lower Tocantins, lower Xingu, Trombetas, Parnaíba, Itapicuru-Mearim, Corentyne-Demerara, lower Orinoco, upper Orinoco, Apure
Pristigasteridae	5	
*Ilisha amazonica**		Upper Xingu, Iriri, lower Xingu, Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Urubu-Uatumã, Trombetas, Amazonas main channel
Pellona castelnaeana		Araguaia, lower Tocantins, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, lower Orinoco, upper Orinoco
Pellona flavipinnis		Lower Tocantins, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Coari-Urucu, Tefé, Putumayo, Japurá, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Parnaíba, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco, upper Orinoco, Paraná-Paraguay
*Pristigaster cayana**		Upper Tocantins, Araguaia, lower Tocantins, middle-lower Madeira, Madeira Shield Tributaries, Juruá, Ucayali, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel
Pristigaster whiteheadi		Middle-lower Madeira, Purus, Juruá, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Araguari-Macari-Amapá
Characiformes	**1063**	
Acestrorhynchidae	10	
Acestrorhynchus abbreviatus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Javari, Ucayali, Napo-Ambyiacu, Amazonas main channel, Amazonas Estuary, Araguari-Macari-Amapá, Paraná-Paraguay
Acestrorhynchus falcatus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, Capim, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco

Taxon	Species	Occurrence
Acestrorhynchus falcirostris		Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Oiapoque, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Acestrorhynchus grandoculis		Teles Pires, middle-lower Madeira, Madeira Shield Tributaries, Napo-Ambyiacu, Putumayo, Negro, Branco, Urubu-Uatumã, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Acestrorhynchus heterolepis		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Amazonas main channel, Itapicuru-Mearim, Essequibo, lower Orinoco, upper Orinoco, Apure
*Acestrorhynchus isalineae**		Middle-lower Madeira, Madeira Shield Tributaries
*Acestrorhynchus maculipinna**		Negro, Amazonas main channel
Acestrorhynchus microlepis		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Coari-Urucu, Tefé, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Acestrorhynchus minimus		Upper Xingu, Teles Pires, Tapajós, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Juruá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Essequibo, lower Orinoco, upper Orinoco, Apure
Acestrorhynchus nasutus		Teles Pires, Tapajós, middle-lower Madeira, Negro, Branco, Amazonas main channel, Capim, Essequibo, upper Orinoco
Alestidae	5	
Chalceus epakros		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, middle-lower Madeira, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
*Chalceus erythrurus**		Middle-lower Madeira, Purus, Coari-Urucu, Juruá, Ucayali, Putumayo, Japurá, Negro, Amazonas main channel
*Chalceus guaporensis**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Amazonas main channel
Chalceus macrolepidotus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Japurá, Negro, Urubu-Uatumã, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
*Chalceus spilogyros**		Tapajós, middle-lower Madeira, Trombetas
Anostomidae	91	
Abramites hypselonotus		Upper Tocantins, Araguaia, lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Putumayo, Japurá, Amazonas main channel, Amazonas Estuary, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Anostomoides laticeps		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Essequibo, lower Orinoco
*Anostomoides passionis**		Lower Xingu, Teles Pires

Taxon	Species	Occurrence
*Anostomus anostomus**		Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Amazonas main channel, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Anostomus longus***		Marañon-Nanay
*Anostomus ternetzi**		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Madeira Shield Tributaries, Japurá, Branco, Urubu-Uatumã, Trombetas, Capim, Maroni-Approuague, Essequibo, lower Orinoco, upper Orinoco, Apure
Gnathodolus bidens		Lower Xingu, Teles Pires, Urubu-Uatumã, lower Orinoco, upper Orinoco
*Hypomasticus julii**		Araguaia, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Jamanxim, Trombetas, Jari
*Hypomasticus lineomaculatus**		Paru, Jari
Hypomasticus megalepis		Upper Tocantins, lower Tocantins, upper Xingu, Iriri, lower Xingu, Branco, Jari, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
Hypomasticus multimaculatus		Upper Tocantins, Araguaia, upper Xingu, lower Xingu, Jari, Araguari-Macari-Amapá
Hypomasticus pachycheilus		Upper Tocantins, lower Tocantins, Jamanxim, Madeira Shield Tributaries, Urubu-Uatumã, Trombetas, Araguari-Macari-Amapá
*Hypomasticus torrenticola**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
*Laemolyta fasciata***		Endemic – Mamoré
Laemolyta fernandezi		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, lower Orinoco, upper Orinoco
Laemolyta garmani		Araguaia, Guaporé, Madeira Shield Tributaries, Tefé, Jutaí, Javari, Ucayali, Napo-Ambyiacu, Putumayo, Japurá, Amazonas main channel, Capim
Laemolyta proxima		Lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Napo-Ambyiacu, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Corentyne-Demerara, Essequibo
Laemolyta taeniata		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Putumayo, Negro, Urubu-Uatumã, Trombetas, Amazonas main channel, Capim, Essequibo, lower Orinoco, upper Orinoco, Apure
*Leporellus vittatus**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Juruá, Branco, Jari, Essequibo, lower Orinoco, upper Orinoco, Apure, Cauca-Magdalena-Sinu, Paraná-Paraguay
*Leporinus acutidens***		
Leporinus affinis		Araguaia, lower Tocantins, lower Xingu, Japurá, Capim, lower Orinoco
Leporinus agassizii		Mamoré, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Corentyne-Demerara, Essequibo, Upper Orinoco
Leporinus altipinnis		Tapajós, middle-lower Madeira, Negro, Amazonas main channel, upper Orinoco
*Leporinus amazonicus**		Mamoré, Guaporé, middle-lower Madeira, Juruá, Japurá, Amazonas main channel
Leporinus arimaspi		Branco, lower Orinoco, upper Orinoco
*Leporinus aripuanaensis**		Madeira Shield Tributaries, Branco, Urubu-Uatumã, Trombetas
*Leporinus bimaculatus**		Upper Tocantins, Amazonas main channel
*Leporinus bistriatus**		Restricted to Tocantins basin (upper Tocantins, lower Tocantins)

Taxon	Species	Occurrence
*Leporinus bleheri**		Guaporé, Negro, Amazonas Estuary
*Leporinus britskii**		Teles Pires, Jamanxim, Jari
Leporinus brunneus		Upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Madeira Shield Tributaries, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, lower Orinoco, upper Orinoco
*Leporinus cylindriformis**		Lower Xingu, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel
Leporinus desmotes		Upper Tocantins, lower Tocantins, Branco, Essequibo
Leporinus enyae		Negro, lower Orinoco, upper Orinoco
Leporinus fasciatus		Upper Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Tefé, Ucayali, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Leporinus friderici		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Putumayo, Japurá, Negro, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Leporinus geminis**		Restricted to Tocantins basin (upper Tocantins, Araguaia, lower Tocantins)
*Leporinus gomesi**		Madeira Shield Tributaries, Negro
Leporinus granti		Upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Madeira Shield Tributaries, Branco, Trombetas, Oiapoque, Maroni-Approuague, Corentyne-Demerara, Essequibo
*Leporinus guttatus**		Endemic – Iriri
*Leporinus jamesi**		Mamoré, middle-lower Madeira, Purus, Ucayali, Amazonas main channel
*Leporinus jatuncochi**		Jamanxim, middle-lower Madeira, Madeira Shield Tributaries, Marañon-Nanay, Napo-Ambyiacu, Urubu-Uatumã, Jari, Amazonas main channel
*Leporinus klausewitzi**		Middle-lower Madeira, Japurá, Negro, Branco, Urubu-Uatumã, Amazonas main channel
Leporinus maculatus		Lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós, Branco, Trombetas, Jari, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
Leporinus melanostictus		Jari, Oiapoque, Maroni-Approuague
*Leporinus microphysus**		Teles Pires, Jamanxim, Jari
Leporinus moralesi		Putumayo, Japurá, Amazonas main channel, lower Orinoco
*Leporinus multifasciatus***		
Leporinus nattereri		Araguaia, middle-lower Madeira, Putumayo, Trombetas, Amazonas main channel, upper Orinoco, Apure
Leporinus niceforoi		Japurá, upper Orinoco
Leporinus nigrotaeniatus		Negro, Branco, Corentyne-Demerara, Essequibo
Leporinus octomaculatus		Teles Pires, Juruena, Tapajós, Paraná-Paraguay
Leporinus ortomaculatus		Upper Tocantins, Araguaia, Branco, Essequibo, lower Orinoco, upper Orinoco
*Leporinus pachyurus***		

Taxon	Species	Occurrence
Leporinus parae		Upper Tocantins, Araguaia, lower Tocantins, lower Xingu, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Amazonas main channel, Amazonas Estuary, lower Orinoco, upper Orinoco
*Leporinus parvulus**		Restricted to Tapajós basin (Teles Pires, Tapajós)
*Leporinus pearsoni**		Mamoré, Guaporé, Beni-Madre de Dios, Madeira Shield Tributaries, Purus, Juruá, Ucayali
Leporinus pellegrinii		Upper Xingu, Branco, Trombetas, Maroni-Approuague, Essequibo
*Leporinus pitingai***		Urubu-Uatumã
*Leporinus reticulatus**		Endemic – Juruena
*Leporinus santosi**		Endemic – lower Tocantins
*Leporinus sexstriatus**		Endemic – Juruena
Leporinus steyermarki		Putumayo, lower Orinoco, upper Orinoco
Leporinus striatus		Mamoré, Guaporé, Beni-Madre de Dios, Juruá, Marañon-Nanay, Napo-Ambyiacu, Putumayo, upper Orinoco, Apure, Cauca-Magdalena-Sinu, Atrato, Paraná-Paraguay
*Leporinus subniger**		Japurá, Amazonas main channel
*Leporinus taeniofasciatus**		Endemic – upper Tocantins
Leporinus tigrinus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Paraná-Paraguay
*Leporinus trimaculatus**		Endemic – Madeira Shield Tributaries
*Leporinus tristriatus**		Upper Tocantins, upper Xingu, Teles Pires, Juruena, Jamanxim
*Leporinus unitaeniatus**		Upper Tocantins, Araguaia, lower Tocantins, Tapajós
*Leporinus vanzoi**		Restricted to Tapajós basin (Teles Pires, Juruena, Tapajós)
*Leporinus venerei**		Endemic – Araguaia
*Leporinus villasboasorum**		Upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena
Leporinus y-ophorus		Mamoré, Guaporé, Beni-Madre de Dios, Purus, Juruá, lower Orinoco, upper Orinoco
*Megaleporinus trifasciatus**		Upper Tocantins, Araguaia, lower Tocantins, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Ucayali, Putumayo, Japurá, Negro, Trombetas, Amazonas main channel
*Petulanos intermedius**		Upper Xingu, lower Xingu, Teles Pires, Jamanxim, Madeira Shield Tributaries
Petulanos plicatus		Mamoré, Guaporé, Branco, Trombetas, Corentyne-Demerara, Essequibo
Pseudanos gracilis		Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Pseudanos trimaculatus		Lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Coari-Urucu, Juruá, Napo-Ambyiacu, Putumayo, Negro, Branco, Urubu-Uatumã, Jari, Amazonas main channel, Amazonas Estuary, Capim, Essequibo, lower Orinoco, upper Orinoco, Apure
Pseudanos varii		Negro, upper Orinoco
Pseudanos winterbottomi		Juruena, Tapajós, Jamanxim, lower Orinoco, upper Orinoco
*Rhytiodus argenteofuscus**		Lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Tefé, Juruá, Putumayo, Branco, Trombetas, Amazonas main channel
*Rhytiodus elongatus***		Purus
*Rhytiodus lauzannei**		Restricted to Madeira basin (Mamoré, Guaporé, middle-lower Madeira)

Taxon	Species	Occurrence
*Rhytiodus microlepis**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Japurá, Amazonas main channel
*Sartor elongatus**		Teles Pires, Juruena, Trombetas
*Sartor respectus**		Endemic – upper Xingu
*Sartor tucuriense**		Endemic – lower Tocantins
Schizodon fasciatus		Lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Javari, Ucayali, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Jari, Amazonas main channel, Amazonas Estuary, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, Maracaibo
Schizodon vittatus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Essequibo
Synaptolaemus latofasciatus		Upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Madeira Shield Tributaries, Branco, Urubu-Uatumã, Trombetas, Essequibo, lower Orinoco, upper Orinoco, Apure
Characidae	635	
*Acestrocephalus acutus**		Upper Tocantins, Araguaia, lower Tocantins, Teles Pires
*Acestrocephalus boehlkei**		Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo
*Acestrocephalus maculosus**		Endemic – upper Tocantins
*Acestrocephalus nigrifasciatus**		Iriri, Teles Pires, Juruena, Jamanxim
*Acestrocephalus pallidus**		Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries
Acestrocephalus sardina		Madeira Shield Tributaries, Jutaí, Negro, Branco, Trombetas, Amazonas main channel, upper Orinoco
*Acestrocephalus stigmatus**		Upper Tocantins, Araguaia, upper Xingu, lower Xingu, Teles Pires
Acrobrycon ipanquianus		UcayaliParaná-Paraguay
*Acrobrycon starnesi**		Endemic – Guaporé
Agoniates anchovia		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Japurá, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Agoniates halecinus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Purus, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Capim, Araguari-Macari-Amapá, Essequibo, upper Orinoco
*Amazonspinther dalmata**		Middle-lower Madeira, Purus
*Aphyocharacidium bolivianum**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
Aphyocharacidium melandetum		Branco, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
*Aphyocharax agassizii***		Amazonas main channel
Aphyocharax anisitsi		Mamoré, Guaporé, Beni-Madre de Dios, Paraná-Paraguay
*Aphyocharax avary***		Middle-lower Madeira
Aphyocharax erythrurus		Branco, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Maracaibo
Aphyocharax nattereri		Mamoré, Guaporé, Beni-Madre de Dios, Amazonas main channel, Paraná-Paraguay
*Aphyocharax pusillus**		Upper Tocantins, Araguaia, lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Coari-Urucu, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure

Taxon	Species	Occurrence
Aphyocharax rathbuni		Mamoré, Guaporé, Paraná-Paraguay
*Aphyodite apiaka**		Endemic – Madeira Shield Tributaries
Aphyodite grammica		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Branco, Amazonas main channel, Essequibo
*Aphyodite tupebas**		Tefé, Amazonas main channel
*Astyanacinus boliviensis**		Mamoré, Beni-Madre de Dios
*Astyanacinus gandhiae**		Ucayali, Marañon-Nanay
*Astyanacinus multidens**		Mamoré, Guaporé, Beni-Madre de Dios, Ucayali
*Astyanacinus villwocki**		Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá
Astyanax abramis		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Juruá, Ucayali, Putumayo, Japurá, Amazonas main channel, lower Orinoco, upper Orinoco
*Astyanax ajuricaba**		Araguaia, Tapajós, Negro, Amazonas main channel
*Astyanax anterior**		Upper Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Urubu-Uatumã, Trombetas, Amazonas main channel
*Astyanax argyrimarginatus**		Araguaia, upper Xingu
Astyanax bimaculatus		Upper Tocantins, Araguaia, upper Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Putumayo, Japurá, Branco, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Cauca-Magdalena-Sinu, Atrato
*Astyanax bourgeti**		Endemic – Amazonas main channel
*Astyanax chaparae**		Endemic – Mamoré
*Astyanax clavitaeniatus**		Endemic – Branco
*Astyanax courensis**		Endemic – upper Tocantins
*Astyanax elachylepis**		Upper Tocantins, Araguaia, lower Tocantins, Teles Pires
*Astyanax fasciatus**		Mamoré, Guaporé, Beni-Madre de Dios, Ucayali, Putumayo, Branco, Parnaíba, Essequibo, lower Orinoco, upper Orinoco, Cauca-Magdalena-Sinu, Atrato, Paraná-Paraguay
Astyanax goyacensis		Araguaia, Paraná-Paraguay
*Astyanax goyanensis**		Endemic – upper Tocantins
*Astyanax gracilior***		Amazonas main channel
*Astyanax guaporensis**		Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries
Astyanax guianensis		Upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Negro, Branco, Jari, Capim, Essequibo
Astyanax integer		Napo-Ambyiacu, Japurá, lower Orinoco, upper Orinoco, Apure, Maracaibo
*Astyanax joaovitori**		Endemic – Araguaia
*Astyanax kullanderi**		Endemic – Araguaia
Astyanax lineatus		Mamoré, Guaporé, Paraná-Paraguay
*Astyanax longior**		Endemic – Marañon
*Astyanax maculisquamis**		Endemic – Guaporé
Astyanax maximus		Beni-Madre de Dios, Purus, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Japurá, upper Orinoco

Taxon	Species	Occurrence
*Astyanax multidens**		Araguaia, upper Xingu, lower Xingu, Teles Pires, Jamanxim, Amazonas main channel
*Astyanax novae**		Upper Tocantins, Araguaia, upper Xingu
*Astyanax poetzschkei***		
Astyanax rupununi		Branco, Essequibo
*Astyanax saltor**		Iriri, Teles Pires
Astyanax siapae		Negro, upper Orinoco, Apure
*Astyanax symmetricus**		Endemic – Amazonas main channel
*Astyanax unitaeniatus**		Endemic – upper Tocantins
*Astyanax utiariti**		Endemic – Juruena
Astyanax validus		Japurá, Oiapoque, Maroni-Approuague
*Astyanax xavante**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Atopomesus pachyodus**		Endemic – Negro
*Attonitus bounites**		Endemic – Beni-Madre de Dios
*Attonitus ephimeros**		Endemic – Ucayali
*Attonitus irisae**		Endemic – Ucayali
*Axelrodia lindeae**		Teles Pires, middle-lower Madeira, Negro, Branco, Amazonas main channel
*Axelrodia stigmatias**		Middle-lower Madeira, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Amazonas main channel
Bario steindachneri		Tapajós, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Putumayo, Amazonas main channel, Capim
*Boehlkea fredcochui**		Japurá, Amazonas main channel
*Boehlkea orcesi**		Endemic – Marañon
*Boehlkea weitzmani**		Endemic – Japurá
*Brachychalcinus copei**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Trombetas, Amazonas main channel
*Brachychalcinus nummus**		Mamoré, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá
Brachychalcinus parnaibae		Lower Tocantins, Parnaíba
*Brachychalcinus reisi**		Endemic – Iriri
*Brittanichthys axelrodi**		Restricted to Negro basin (Negro, Branco)
Brittanichthys myersi		Negro, Branco, Corentyne-Demerara, Essequibo
Brycon amazonicus		Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Brycon atrocaudatus***		Endemic – Marañon
*Brycon coxeyi**		Endemic – Marañon
*Brycon falcatus**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Guaporé, Madeira Shield Tributaries, Negro, Branco, Amazonas main channel, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
*Brycon gouldingi**		Restricted to Tocantins basin (upper Tocantins, Araguaia, lower Tocantins)

Taxon	Species	Occurrence
Brycon hilarii		Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Paraná-Paraguay
*Brycon melanopterus**		Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel
Brycon nattereri		Upper Tocantins, Parana-Paraguay, São Francisco
*Brycon pesu**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Guaporé, Madeira Shield Tributaries, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Maroni-Approuague, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Brycon polylepis		Upper Tocantins, lower Tocantins, Beni-Madre de Dios, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Amazonas main channel, upper Orinoco, Maracaibo
*Brycon stolzmanni**		Endemic – Marañon
*Bryconacidnus ellisi**		Mamoré, Guaporé, Beni-Madre de Dios, Ucayali, Napo-Ambyiacu
*Bryconacidnus hemigrammus**		Endemic – Beni-Madre de Dios
*Bryconacidnus paipayensis**		Endemic – Marañon
*Bryconadenos tanaothoros**		Upper Xingu, Teles Pires, Juruena
*Bryconadenos weitzmani**		Endemic – Iriri
*Bryconamericus alfredae**		Beni-Madre de Dios, Ucayali
*Bryconamericus bolivianus**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
*Bryconamericus carlosi**		Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá
Bryconamericus deuterodonoides		Japurá, lower Orinoco, upper Orinoco, Apure, Maracaibo
*Bryconamericus diaphanus**		Beni-Madre de Dios, Marañon-Nanay
*Bryconamericus galvisi**		Putumayo, Japurá
*Bryconamericus grosvenori**		Beni-Madre de Dios, Ucayali
Bryconamericus hyphesson		Branco, Essequibo
Bryconamericus macrophthalmus		Negro, upper Orinoco
*Bryconamericus novae**		Endemic – upper Tocantins
Bryconamericus orinocoense		Teles Pires, Mamoré, middle-lower Madeira, Madeira Shield Tributaries, upper Orinoco
*Bryconamericus oroensis**		Endemic – Marañon
*Bryconamericus orteguasae**		Beni-Madre de Dios, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá
*Bryconamericus osgoodi**		Endemic – Marañon
*Bryconamericus pachacuti**		Beni-Madre de Dios, middle-lower Madeira, Ucayali, Japurá
*Bryconamericus pectinatus**		Beni-Madre de Dios, Madeira Shield Tributaries, Ucayali
*Bryconamericus peruanus**		Marañon-Nanay, Napo-Ambyiacu
*Bryconamericus phoenicopterus**		Endemic – Napo-Ambyiacu
*Bryconamericus pinnavittatus**		Endemic – Teles Pires
*Bryconamericus zamorensis**		Endemic – Marañon
*Bryconella pallidifrons**		Middle-lower Madeira, Purus, Juruá, Putumayo, Amazonas main channel
*Bryconexodon juruenae**		Endemic – Juruena
*Bryconexodon trombetasi**		Teles Pires, Trombetas

Taxon	Species	Occurrence
Bryconops affinis		Upper Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, Putumayo, Japurá, Branco, Trombetas, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
Bryconops alburnoides		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Bryconops caudomaculatus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Guaporé, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Bryconops disruptus**		Endemic – Negro
*Bryconops durbinae***		
Bryconops giacopinii		Araguaia, upper Xingu, lower Xingu, Teles Pires, middle-lower Madeira, Putumayo, Japurá, Negro, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
*Bryconops gracilis**		Araguaia, upper Xingu, Trombetas
Bryconops humeralis		Negro, upper Orinoco
Bryconops inpai		Middle-lower Madeira, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco
Bryconops melanurus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, Putumayo, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
*Bryconops munduruku**		Endemic – Tapajós
*Bryconops piracolina**		Juruena, Madeira Shield Tributaries
*Bryconops tocantinensis**		Endemic – upper Tocantins
*Bryconops transitorius***		
*Caiapobrycon tucurui**		Restricted to Tocantins basin (upper Tocantins, lower Tocantins)
*Ceratobranchia binghami**		Beni-Madre de Dios, Ucayali
*Ceratobranchia delotaenia**		Endemic – Beni-Madre de Dios
*Ceratobranchia elatior**		Endemic – Marañon
*Ceratobranchia obtusirostris**		Ucayali, Japurá
*Charax caudimaculatus**		Endemic – Beni-Madre de Dios
*Charax condei**		Tapajós, Negro, Amazonas main channel
*Charax delimai**		Endemic – Negro
Charax gibbosus		Branco, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara
Charax hemigrammus		Negro, Amazonas main channel, Essequibo
Charax leticiae		Upper Tocantins, Araguaia, lower Tocantins, Paraná-Paraguay
*Charax macrolepis**		Restricted to Madeira basin (Guaporé, middle-lower Madeira)
*Charax michaeli **		Tefé, Negro, Branco, Jari, Amazonas main channel
Charax niger		Upper Tocantins, Negro, Araguari-Macari-Amapá
Charax pauciradiatus		Amazonas main channel, Capim

Taxon	Species	Occurrence
Charax rupununi		Trombetas, Essequibo
*Charax tectifer**		Ucayali, Napo-Ambyiacu, Amazonas main channel
*Cheirodon luelingi**		Endemic – Ucayali
*Cheirodon ortegai**		Endemic – Ucayali
Cheirodon stenodon		Mamoré, Beni-Madre de Dios, Paraná-Paraguay
*"Cheirodon" troemneri**		Restricted to Madeira basin (Mamoré, middle-lower Madeira)
*Chrysobrycon eliasi**		Endemic – Beni-Madre de Dios
*Chrysobrycon hesperus**		Middle-lower Madeira, Napo-Ambyiacu
*Chrysobrycon mojicai**		Endemic – Amazonas main channel
*Chrysobrycon myersi**		Endemic – Ucayali
*Chrysobrycon yoliae**		Endemic – Ucayali
Clupeacharax anchoveoides		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Paraná-Paraguay
*Creagrutus amoenus**		Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá
*Creagrutus anary**		Middle-lower Madeira, Madeira Shield Tributaries
*Creagrutus atrisignum**		Endemic – upper Tocantins
*Creagrutus barrigai**		Purus, Juruá, Javari, Marañon-Nanay, Napo-Ambyiacu, Amazonas main channel
*Creagrutus beni**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Japurá
*Creagrutus britskii**		Upper Tocantins, lower Tocantins, Iriri
*Creagrutus cerritulus**		Endemic – Marañon
*Creagrutus changae**		Purus, Juruá, Ucayali
*Creagrutus cochui**		Ucayali, Amazonas main channel
*Creagrutus cracentis**		Lower Xingu, Tapajós
Creagrutus ephippiatus		Negro, lower Orinoco
*Creagrutus figueiredoi**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Creagrutus flavescens**		Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá
*Creagrutus gephyrus**		Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá
*Creagrutus gracilis**		Endemic – Marañon
*Creagrutus holmi**		Endemic – Marañon
Creagrutus ignotus		Upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Jamanxim, Paraná-Paraguay
*Creagrutus kunturus**		Marañon-Nanay, Napo-Ambyiacu
*Creagrutus manu**		Endemic – Beni-Madre de Dios
Creagrutus maxillaris		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Negro, Branco, Essequibo, lower Orinoco, upper Orinoco
Creagrutus melanzonus		Branco, Maroni-Approuague, Corentyne-Demerara, Essequibo, upper Orinoco
*Creagrutus menezesi**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Negro, Branco
*Creagrutus molinus**		Endemic – Araguaia
*Creagrutus mucipu**		Upper Tocantins, upper Xingu
*Creagrutus muelleri**		Endemic – Marañon

Taxon	Species	Occurrence
*Creagrutus nigrotaeniatus**		Restricted to Tapajós basin (Juruena, Tapajós, Jamanxim)
*Creagrutus occidaneus**		Beni-Madre de Dios, Purus
*Creagrutus ortegai**		Ucayali, Marañon-Nanay
*Creagrutus ouranonastes**		Endemic – Ucayali
*Creagrutus pearsoni**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios, middle-lower Madeira)
*Creagrutus peruanus**		Endemic – Ucayali
*Creagrutus petilus**		Middle-lower Madeira, Madeira Shield Tributaries
Creagrutus phasma		Negro, lower Orinoco, upper Orinoco, Apure
*Creagrutus pila**		Endemic – Ucayali
Creagrutus runa		Negro, upper Orinoco
*Creagrutus saxatilis**		Endemic – upper Tocantins
*Creagrutus seductus**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Creagrutus tuyuka**		Endemic – Negro
*Creagrutus ungulus**		Endemic – Beni-Madre de Dios
Creagrutus vexillapinnus		Negro, upper Orinoco
*Creagrutus yanatili**		Endemic – Ucayali
*Creagrutus yudja**		Iriri, lower Xingu
Creagrutus zephyrus		Negro, upper Orinoco
Ctenobrycon hauxwellianus		Upper Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, Purus, Juruá, Ucayali, Napo-Ambyiacu, Putumayo, Japurá, Branco, Amazonas main channel, Parnaíba
*Ctenobrycon multiradiatus***		Tefé
Ctenobrycon spilurus		Upper Tocantins, lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Japurá, Branco, Trombetas, Jari, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Ctenocheirodon pristis**		Endemic – upper Tocantins
*Cyanogaster noctivaga**		Endemic – Negro
*Cynopotamus amazonum**		Upper Tocantins, Araguaia, lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Putumayo, Japurá, Branco, Amazonas main channel
Cynopotamus essequibensis		Branco, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
*Cynopotamus gouldingi**		Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries
*Cynopotamus juruenae**		Restricted to Tapajós basin (Teles Pires, Juruena)
*Cynopotamus tocantinensis**		Restricted to Tocantins basin (Araguaia, lower Tocantins)
*Cynopotamus xinguano**		Endemic – upper Xingu
*Dectobrycon armeniacus***		
Engraulisoma taeniatum		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Napo-Ambyiacu, Putumayo, upper Orinoco, Apure, Paraná-Paraguay
*Erythrocharax altipinnis**		Endemic – Iriri
Exodon paradoxus		Upper Tocantins, Araguaia, lower Tocantins, Branco, Essequibo, lower Orinoco, upper Orinoco

Taxon	Species	Occurrence
*Galeocharax goeldii**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
Galeocharax gulo		Upper Tocantins, Araguaia, lower Tocantins, Teles Pires, Juruena, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Gephyrocharax major**		Mamoré, Beni-Madre de Dios, Juruá, Ucayali, Marañon-Nanay
Gnathocharax steindachneri		Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Putumayo, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Grundulus bogotensis		Putumayo, Cauca-Magdalena-Sinu
*Grundulus cochae**		Endemic – Putumayo
*Gymnocorymbus flaviolimai**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
Gymnocorymbus thayeri		Purus, Juruá, Ucayali, Napo-Ambyiacu, Negro, Trombetas, Amazonas main channel, Parnaíba, Gurupi-Turiaçu, Corentyne-Demerara
Hasemania crenuchoides		Upper Tocantins, Paraná-Paraguay
Hasemania hanseni		Upper Tocantins, Paraná-Paraguay
*Hasemania kalunga**		Endemic – upper Tocantins
*Hasemania nambiquara**		Endemic – Juruena
*Hemibrycon beni**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
*Hemibrycon divisorensis**		Endemic – Ucayali
*Hemibrycon helleri**		Ucayali, Marañon-Nanay
*Hemibrycon huambonicus**		Beni-Madre de Dios, Marañon-Nanay
*Hemibrycon inambari**		Beni-Madre de Dios, Madeira Shield Tributaries
*Hemibrycon jelskii**		Mamoré, Beni-Madre de Dios, Purus, Juruá, Ucayali, Marañon-Nanay
Hemibrycon metae		Japurá, lower Orinoco, upper Orinoco, Apure
*Hemibrycon mikrostiktos**		Endemic – Ucayali
*Hemibrycon polyodon**		Endemic – Marañon
Hemibrycon surinamensis		Upper Tocantins, lower Tocantins, upper Xingu, lower Xingu, Tapajós, Maroni-Approuague, Coppename-Suriname-Saramacca
*Hemibrycon tridens**		Endemic – Ucayali
*Hemigrammus aguaruna**		Marañon-Nanay, Amazonas main channel
Hemigrammus analis		Teles Pires, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Jutaí, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Corentyne-Demerara, Essequibo, upper Orinoco, Apure
*Hemigrammus arua**		Endemic – Amazonas main channel
*Hemigrammus ataktos**		Endemic – upper Tocantins
Hemigrammus barrigonae		Negro, lower Orinoco, upper Orinoco, Apure
Hemigrammus bellottii		Tapajós, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Hemigrammus bleheri		Negro, upper Orinoco

Taxon	Species	Occurrence
*Hemigrammus coeruleus**		Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel
*Hemigrammus cupreus**		Endemic – Amazonas main channel
Hemigrammus cylindricus		Negro, Branco, Essequibo, upper Orinoco
*Hemigrammus diagonicus**		Jari, Amazonas main channel
Hemigrammus durbinae		Guaporé, middle-lower Madeira, Purus, Amazonas main channel, Paraná-Paraguay
Hemigrammus elegans		Amazonas main channel, upper Orinoco, Apure
Hemigrammus erythrozonus		Branco, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
*Hemigrammus falsus***		
*Hemigrammus filamentosus**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Hemigrammus geisleri**		Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Amazonas main channel
Hemigrammus gracilis		Putumayo, Japurá, Branco, Amazonas main channel, Essequibo, upper Orinoco
*Hemigrammus guyanensis**		Lower Tocantins, middle-lower Madeira, Madeira Shield Tributaries, Amazonas main channel, Amazonas Estuary, Gurupi-Turiaçu, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Essequibo, lower Orinoco, upper Orinoco
*Hemigrammus haraldi**		Purus, Tefé, Ucayali, Japurá, Negro, Amazonas main channel
Hemigrammus hyanuary		Tapajós, Mamoré, middle-lower Madeira, Negro, Amazonas main channel, upper Orinoco
Hemigrammus iota		Japurá, Branco, Corentyne-Demerara, Essequibo, upper Orinoco
Hemigrammus levis		upper Tocantins, Araguaia, Teles Pires, Juruena, Tapajós, middle-lower Madeira, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Essequibo, lower Orinoco, upper Orinoco
*Hemigrammus luelingi**		Ucayali, Putumayo, Japurá, Amazonas main channel
Hemigrammus lunatus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Amazonas main channel, Corentyne-Demerara, Paraná-Paraguay
Hemigrammus machadoi		Mamoré, Guaporé, middle-lower Madeira, Paraná-Paraguay
Hemigrammus mahnerti		Guaporé, Paraná-Paraguay
*Hemigrammus megaceps**		Endemic – Ucayali
*Hemigrammus melanochrous**		Teles Pires, middle-lower Madeira, Juruá, Putumayo, Japurá
Hemigrammus microstomus		Teles Pires, Putumayo, Japurá, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Hemigrammus mimus		Negro, lower Orinoco, upper Orinoco, Apure
Hemigrammus neptunus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Branco, Trombetas, Paraná-Paraguay
Hemigrammus newboldi		Upper Xingu, Essequibo, lower Orinoco, upper Orinoco, Apure
Hemigrammus ocellifer		Upper Tocantins, Araguaia, lower Tocantins, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Jutaí, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
Hemigrammus ora		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Teles Pires, Juruena, Tapajós, Amazonas Estuary, Maroni-Approuague
Hemigrammus orthus		Tapajós, Corentyne-Demerara, Essequibo

Taxon	Species	Occurrence
Hemigrammus parana		Araguaia, Paraná-Paraguay
*Hemigrammus pretoensis**		Negro, Urubu-Uatumã, Amazonas main channel
*Hemigrammus pulcher**		Putumayo, Amazonas main channel
Hemigrammus rodwayi		Araguaia, lower Tocantins, Branco, Amazonas Estuary, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
Hemigrammus schmardae		Juruá, Putumayo, Japurá, Negro, Branco, Amazonas main channel, Essequibo
*Hemigrammus silimoni**		Juruena, Madeira Shield Tributaries
*Hemigrammus skolioplatus**		Endemic – Juruena
Hemigrammus stictus		Tapajós, Mamoré, Guaporé, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Corentyne-Demerara, Essequibo, Apure
*Hemigrammus tocantinsi**		Endemic – upper Tocantins
Hemigrammus tridens		Guaporé, Paraná-Paraguay
Hemigrammus unilineatus		Lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Napo-Ambyiacu, Putumayo, Branco, Amazonas main channel, Amazonas Estuary, Gurupi-Turiaçu, Capim, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Hemigrammus vorderwinkleri		Tapajós, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Branco, Trombetas, lower Orinoco, upper Orinoco, Apure
*Hemigrammus yinyang**		Endemic – Negro
Heterocharax leptogrammus		Negro, upper Orinoco
Heterocharax macrolepis		Upper Xingu, lower Xingu, Tapajós, middle-lower Madeira, Marañon-Nanay, Napo-Ambyiacu, Negro, Branco, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Heterocharax virgulatus		Tapajós, middle-lower Madeira, Negro, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Hoplocharax goethei		Tapajós, middle-lower Madeira, Negro, Urubu-Uatumã, Amazonas main channel, upper Orinoco
*Hyphessobrycon agulha**		Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Jutaí, Ucayali, Putumayo, Negro, Urubu-Uatumã, Amazonas main channel
*Hyphessobrycon amandae**		Endemic – Araguaia
*Hyphessobrycon amaronensis**		Endemic – Putumayo
Hyphessobrycon bentosi		Lower Tocantins, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Ucayali, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
*Hyphessobrycon cachimbensis**		Endemic – Teles Pires
Hyphessobrycon catableptus		Branco, Essequibo
*Hyphessobrycon clavatus***		
Hyphessobrycon coelestinus		Upper Tocantins, Paraná-Paraguay, São Francisco
Hyphessobrycon copelandi		Araguaia, lower Xingu, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Jutaí, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Jari, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Essequibo, upper Orinoco
*Hyphessobrycon cyanotaenia**		Juruena, Guaporé, Paraná-Paraguay
*Hyphessobrycon delimai**		Endemic – Jamanxim

Taxon	Species	Occurrence
Hyphessobrycon diancistrus		Upper Xingu, Iriri, Teles Pires, Tapajós, middle-lower Madeira, Purus, Tefé, Japurá, Negro, Amazonas main channel, upper Orinoco
*Hyphessobrycon diastatos**		Upper Tocantins, São Francisco
*Hyphessobrycon dorsalis**		Teles Pires, Negro, Branco
*Hyphessobrycon eilyos**		Endemic – Araguaia
Hyphessobrycon elachys		Mamoré, Guaporé, Paraná-Paraguay
Hyphessobrycon epicharis		Negro, upper Orinoco
Hyphessobrycon eques		Upper Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Amazonas main channel, Paraná-Paraguay
*Hyphessobrycon ericae**		Tapajós, middle-lower Madeira, Trombetas
*Hyphessobrycon erythrostigma**		Purus, Tefé, Marañon-Nanay, Putumayo, Japurá, Branco, Amazonas main channel
*Hyphessobrycon eschwartzae**		Endemic – Beni-Madre de Dios
*Hyphessobrycon frankei**		Endemic – Ucayali
*Hyphessobrycon gracilior**		Beni-Madre de Dios, middle-lower Madeira, Ucayali, Japurá, Amazonas main channel
*Hyphessobrycon hamatus**		Endemic – upper Tocantins
*Hyphessobrycon haraldschultzi**		Restricted to Tocantins basin (Araguaia, lower Tocantins)
*Hyphessobrycon hasemani**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
*Hyphessobrycon heliacus**		Endemic – Teles Pires
Hyphessobrycon heterorhabdus		Lower Tocantins, upper Xingu, lower Xingu, Tapajós, Mamoré, Guaporé, Capim
*Hyphessobrycon hexastichos**		Juruena, Guaporé
*Hyphessobrycon inconstans***		
*Hyphessobrycon jackrobertsi**		Endemic – Marañon
*Hyphessobrycon juruna**		Restricted to Xingu basin (upper Xingu, lower Xingu)
*Hyphessobrycon kayabi**		Endemic – Teles Pires
*Hyphessobrycon khardinae**		Middle-lower Madeira, Purus
*Hyphessobrycon krenakore**		Endemic – Iriri
*Hyphessobrycon langeanii**		Endemic – Araguaia
*Hyphessobrycon loretoensis**		Purus, Putumayo, Japurá, Amazonas main channel
*Hyphessobrycon loweae**		Araguaia, upper Xingu
*Hyphessobrycon lucenorum**		Endemic – Madeira Shield Tributaries
*Hyphessobrycon margitae**		Endemic – Marañon
Hyphessobrycon megalopterus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Paraná-Paraguay
*Hyphessobrycon melanostichos**		Juruena, Madeira Shield Tributaries
*Hyphessobrycon melasemeion***		
*Hyphessobrycon melazonatus**		Japurá, Amazonas main channel
Hyphessobrycon minor		Branco, Essequibo, lower Orinoco, upper Orinoco
Hyphessobrycon moniliger		Upper Tocantins, Araguaia, upper Xingu, Teles Pires, Juruena, Paraná-Paraguay
*Hyphessobrycon montagi**		Endemic – Amazonas main channel

Taxon	Species	Occurrence
*Hyphessobrycon mutabilis**		Endemic – upper Xingu
*Hyphessobrycon myrmex**		Endemic – Juruena
*Hyphessobrycon nigricinctus**		Endemic – Beni-Madre de Dios
*Hyphessobrycon notidanos**		Juruena, Madeira Shield Tributaries
*Hyphessobrycon oritoensis**		Endemic – Putumayo
*Hyphessobrycon paepkei**		Endemic – Negro
*Hyphessobrycon pando**		Restricted to Madeira basin (Beni-Madre de Dios, middle-lower Madeira)
*Hyphessobrycon peruvianus**		Putumayo, Japurá, Amazonas main channel
*Hyphessobrycon petricolus**		Endemic – Madeira Shield Tributaries
*Hyphessobrycon peugeoti**		Endemic – Juruena
*Hyphessobrycon pinnistriatus**		Endemic – Teles Pires
*Hyphessobrycon piranga**		Endemic – Juruena
*Hyphessobrycon platyodus**		Endemic – Madeira Shield Tributaries
*Hyphessobrycon procyon**		Endemic – Madeira Shield Tributaries
*Hyphessobrycon psittacus**		Juruena, Guaporé
*Hyphessobrycon pulchripinnis**		Lower Xingu, Teles Pires, Tapajós, Urubu-Uatumã
*Hyphessobrycon pyrrhonotus**		Endemic – Negro
*Hyphessobrycon robustulus**		Endemic – Amazonas main channel
Hyphessobrycon rosaceus		Trombetas, Capim, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
*Hyphessobrycon scholzei**		Japurá
*Hyphessobrycon scutulatus**		Endemic – Teles Pires
*Hyphessobrycon socolofi**		Negro, Branco, Amazonas main channel
*Hyphessobrycon stegemanni**		Endemic – upper Tocantins
*Hyphessobrycon stramineus***		Amazonas main channel
Hyphessobrycon sweglesi		Mamoré, middle-lower Madeira, Purus, Negro, Branco, Amazonas main channel, upper Orinoco, Apure
Hyphessobrycon taguae		Putumayo, upper Orinoco
*Hyphessobrycon taphorni**		Endemic – Beni-Madre de Dios
*Hyphessobrycon tenuis**		Endemic – Ucayali
*Hyphessobrycon tropis**		Endemic – Negro
*Hyphessobrycon tukunai**		Putumayo, Amazonas main channel
*Hyphessobrycon vanzolinii**		Endemic – Tapajós
Hyphessobrycon vilmae		Upper Xingu, Teles Pires, Juruena, Madeira Shield Tributaries, Paraná-Paraguay
*Hyphessobrycon wadai**		Endemic – Juruena
*Hyphessobrycon weitzmanorum**		Endemic – Araguaia
*Hyphessobrycon wosiackii**		Endemic – Middle-lower Madeira
Iguanodectes adujai		Negro, upper Orinoco
Iguanodectes geisleri		Middle-lower Madeira, Madeira Shield Tributaries, Japurá, Negro, Branco, lower Orinoco, upper Orinoco

Taxon	Species	Occurrence
*Iguanodectes gracilis**		Restricted to Negro basin (Negro, Branco)
*Iguanodectes polylepis**		Purus
*Iguanodectes purusii**		Teles Pires, Guaporé, middle-lower Madeira, Amazonas main channel
Iguanodectes rachovii		Amazonas main channel, Capim
Iguanodectes spilurus		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Tefé, Ucayali, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
*Iguanodectes variatus**		Mamoré, Branco
*Inpaichthys kerri**		Juruena, Madeira Shield Tributaries
Jupiaba abramoides		Iriri, Negro, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
Jupiaba acanthogaster		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Trombetas, Paraná-Paraguay
Jupiaba anteroides		Lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Mamoré, middle-lower Madeira, Javari, Japurá, Negro, Trombetas, Amazonas main channel, Capim, lower Orinoco, upper Orinoco
*Jupiaba apenima**		Upper Tocantins, Araguaia, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós
*Jupiaba asymmetrica**		Jutaí, Putumayo, Japurá, Amazonas main channel
Jupiaba atypindi		Negro, Branco, Trombetas, Essequibo, upper Orinoco
*Jupiaba citrina**		Endemic – Madeira Shield Tributaries
*Jupiaba elassonaktis**		Endemic – upper Tocantins
Jupiaba essequibensis		Lower Xingu, Madeira Shield Tributaries, Jari, Essequibo
*Jupiaba iasy**		Lower Xingu, Teles Pires, Tapajós, Jamanxim, Madeira Shield Tributaries
*Jupiaba kurua**		Endemic – Iriri
Jupiaba meunieri		Iriri, Teles Pires, Juruena, Jamanxim, Trombetas, Jari, Araguari-Macari-Amapá, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara
*Jupiaba minor**		Endemic – Teles Pires
Jupiaba ocellata		Curuá-Paru do Oeste, Oiapoque
*Jupiaba paranatinga**		Restricted to Tapajós basin (Teles Pires, Jamanxim)
Jupiaba pinnata		Branco, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
*Jupiaba pirana**		Restricted to Tapajós basin (Teles Pires, Tapajós)
*Jupiaba poekotero**		Endemic – Negro
Jupiaba polylepis		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós, Branco, Jari, Parnaíba, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Jupiaba poranga**		Teles Pires, Juruena, Madeira Shield Tributaries
Jupiaba scologaster		Negro, Branco, lower Orinoco, upper Orinoco
*Jupiaba yarina**		Endemic – Juruena
Jupiaba zonata		Lower Tocantins, middle-lower Madeira, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Amazonas main channel, Capim, lower Orinoco

Taxon	Species	Occurrence
*Knodus borki**		Endemic – Amazonas main channel
*Knodus breviceps***		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Japurá, lower Orinoco, upper Orinoco
Knodus chapadae		Upper Tocantins, Guaporé, Paraná-Paraguay
*Knodus delta**		Marañon-Nanay, Napo-Ambyiacu, Putumayo
*Knodus dorsomaculatus**		Endemic – Teles Pires
*Knodus figueiredoi**		Endemic – Araguaia
*Knodus gamma**		Beni-Madre de Dios, middle-lower Madeira, Marañon-Nanay, Napo-Ambyiacu
Knodus heteresthes		Araguaia, Tapajós, Jamanxim, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Negro, Trombetas, Amazonas main channel, Maroni-Approuague, upper Orinoco
Knodus hypopterus		Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Japurá, lower Orinoco, upper Orinoco, Apure
*Knodus jacunda***		
*Knodus longus***		Endemic – Beni-Madre de Dios
*Knodus megalops**		Ucayali, Marañon-Nanay
*Knodus mizquae**		Restricted to Madeira basin (Mamoré, Guaporé)
Knodus moenkhausii		Iriri, Mamoré, Guaporé, Beni-Madre de Dios, Paraná-Paraguay
*Knodus pasco**		Endemic – Ucayali
Knodus savannensis		Upper Tocantins, Araguaia, Itapicuru-Mearim, Capim
*Knodus septentrionalis***		Putumayo
*Knodus shinahota**		Endemic – Mamoré
*Knodus smithi**		Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali
*Leptagoniates steindachneri**		Upper Tocantins, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá
*Leptobrycon jatuaranae**		Endemic – Negro
Lonchogenys ilisha		Putumayo, Negro, Amazonas main channel, upper Orinoco, Apure
*Macropsobrycon xinguensis**		Araguaia, upper Xingu, Teles Pires
Markiana geayi		Japurá, lower Orinoco, upper Orinoco, Apure
Markiana nigripinnis		Mamoré, Guaporé, Beni-Madre de Dios, Paraná-Paraguay
*Microgenys lativirgata**		Endemic – Marañon
*Microgenys weyrauchi***		Ucayali
Microschemobrycon callops		Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Jutaí, Japurá, Negro, Branco, Essequibo, lower Orinoco, upper Orinoco, Apure
Microschemobrycon casiquiare		Iriri, lower Xingu, Teles Pires, Jamanxim, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Japurá, Negro, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Microschemobrycon elongatus		Araguaia, upper Xingu, Teles Pires, Beni-Madre de Dios, middle-lower Madeira, Itapicuru-Mearim, Capim, Paraná-Paraguay
Microschemobrycon geisleri		Araguaia, Teles Pires, Tapajós, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Negro, Capim, Essequibo
*Microschemobrycon guaporensis**		Restricted to Madeira basin (Mamoré, Guaporé, middle-lower Madeira)

Taxon	Species	Occurrence
Microschemobrycon melanotus		Teles Pires, Mamoré, Guaporé, middle-lower Madeira, Coari-Urucu, Jutaí, Japurá, Negro, Amazonas main channel, Essequibo
*Microschemobrycon meyburgi**		Restricted to Negro basin (Negro, Branco)
*Moenkhausia abyss**		Upper Tocantins, Araguaia, lower Tocantins, Tapajós, middle-lower Madeira, Negro, Trombetas, Paru, Jari, Amazonas main channel
*Moenkhausia affinis**		Endemic – Negro
*Moenkhausia agnesae**		Endemic – Amazonas main channel
*Moenkhausia alesis**		Endemic – upper Xingu
*Moenkhausia atahualpiana***		
*Moenkhausia aurantia**		Upper Tocantins, Araguaia, Parará-Paraguay, São Francisco
*Moenkhausia barbouri**		Endemic – Amazonas main channel
*Moenkhausia beninei**		Endemic – Negro
Moenkhausia bonita		Middle-lower Madeira, Paraná-Paraguay
*Moenkhausia britskii**		Endemic – Putumayo
*Moenkhausia celibela**		Iriri, lower Xingu, Teles Pires, Tapajós, Jamanxim, middle-lower Madeira, Branco, Jari, Amazonas main channel
Moenkhausia ceros		Teles Pires, Tapajós, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Tefé, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Essequibo
*Moenkhausia chlorophthalma**		Endemic – Iriri
Moenkhausia chrysargyrea		Lower Tocantins, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Napo-Ambyiacu, Putumayo, Branco, Amazonas main channel, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Moenkhausia collettii		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Tefé, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Moenkhausia comma		Lower Tocantins, lower Xingu, Tapajós, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Essequibo, lower Orinoco, upper Orinoco, Apure
*Moenkhausia conspicua**		Endemic – Tapajós
Moenkhausia copei		Napo-Ambyiacu, Putumayo, Japurá, Branco, Trombetas, Amazonas main channel, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Moenkhausia cosmops		Juruena, Paraná-Paraguay
Moenkhausia cotinho		Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Ucayali, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
*Moenkhausia crisnejas**		Endemic – Marañon
*Moenkhausia dasalmas**		Endemic – upper Tocantins
Moenkhausia dichroura		Upper Tocantins, Araguaia, lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay

Taxon	Species	Occurrence
*Moenkhausia diktyota**		Middle-lower Madeira, Negro
*Moenkhausia dorsinuda**		Restricted to Madeira basin (Mamoré, Guaporé)
*Moenkhausia eurystaenia**		Endemic – upper Xingu
*Moenkhausia goya**		Endemic – upper Tocantins
Moenkhausia gracilima		Araguaia, Juruena, Tapajós, middle-lower Madeira, Japurá, Negro, Trombetas, Amazonas main channel, upper Orinoco
*Moenkhausia grandisquamis**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Branco, Amazonas main channel, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
Moenkhausia hasemani		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, middle-lower Madeira, Negro, Amazonas main channel, Capim
*Moenkhausia heikoi**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
Moenkhausia hemigrammoides		Tapajós, Negro, Branco, Trombetas, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara
Moenkhausia hysterosticta		Upper Tocantins, middle-lower Madeira, Purus, Trombetas, Apure
*Moenkhausia icae**		Putumayo, Japurá, Amazonas main channel
Moenkhausia intermedia		Upper Xingu, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Amazonas main channel, Maroni-Approuague, lower Orinoco, upper Orinoco, Paraná-Paraguay
*Moenkhausia ischyognatha**		Endemic – upper Tocantins
*Moenkhausia jamesi**		Purus, Juruá, Amazonas main channel, Amazonas Estuary
*Moenkhausia justae**		Araguaia, Japurá, Negro, Amazonas main channel
Moenkhausia lata		Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Negro, Amazonas Estuary, Essequibo, lower Orinoco, upper Orinoco
*Moenkhausia latissima**		Endemic – Amazonas main channel
Moenkhausia lepidura		Araguaia, lower Tocantins, Tapajós, Guaporé, middle-lower Madeira, Purus, Putumayo, Negro, Trombetas, Amazonas main channel, upper Orinoco, Apure
*Moenkhausia levidorsa**		Juruena, Madeira Shield Tributaries
*Moenkhausia lineomaculata**		Endemic – Juruena
Moenkhausia lopesi		Araguaia, Juruena, Paraná-Paraguay
*Moenkhausia loweae**		Upper Tocantins, Araguaia, upper Xingu, Iriri
*Moenkhausia margitae**		Endemic – Ucayali
Moenkhausia megalops		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Tapajós, Jamanxim, middle-lower Madeira, Putumayo, Japurá, Branco, Jari, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
Moenkhausia melogramma		Putumayo, Amazonas main channel, upper Orinoco
Moenkhausia miangi		Putumayo, Branco, Essequibo, lower Orinoco, upper Orinoco
Moenkhausia mikia		Lower Xingu, Teles Pires, Jamanxim, middle-lower Madeira, Madeira Shield Tributaries, Coari-Urucu, Ucayali, Negro, Urubu-Uatumã, Trombetas, Amazonas main channel, upper Orinoco
*Moenkhausia monicae**		Endemic – Juruena
*Moenkhausia mutum**		Endemic – Juruena

Taxon Species	Occurrence
*Moenkhausia naponis**	Napo-Ambyiacu, Putumayo, Amazonas main channel
*Moenkhausia newtoni***	Upper Xingu
*Moenkhausia nigromarginata**	Endemic – Juruena
Moenkhausia oligolepis	Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Jutaí, Ucayali, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Moenkhausia orteguasae**	Endemic – Japurá
*Moenkhausia ovalis**	Japurá
*Moenkhausia pankilopteryx**	Restricted to Tocantins basin (upper Tocantins, lower Tocantins)
*Moenkhausia parecis**	Endemic – Madeira Shield Tributaries
*Moenkhausia petymbuaba**	Endemic – Iriri
Moenkhausia phaeonota	Araguaia, upper Xingu, Teles Pires, Juruena, Paraná-Paraguay
*Moenkhausia pirauba**	Upper Xingu, Iriri, Teles Pires, Juruena, Jamanxim
*Moenkhausia plumbea**	Endemic – Teles Pires
*Moenkhausia pyrophthalma**	Araguaia, upper Xingu
*Moenkhausia robertsi**	Japurá, Amazonas main channel
*Moenkhausia rubra**	Juruena, Guaporé
*Moenkhausia sthenosthoma**	Restricted to Madeira basin (Mamoré, Guaporé, middle-lower Madeira)
Moenkhausia surinamensis	Trombetas, Araguari-Macari-Amapá, Oiapoque, Coppename-Suriname-Saramacca, Corentyne-Demerara, upper Orinoco
*Moenkhausia tergimacula**	Endemic – upper Tocantins
*Moenkhausia tridentata***	
*Moenkhausia uirapuru**	Juruena, Guaporé
*Moenkhausia venerei**	Endemic – Araguaia
*Moenkhausia xinguensis**	Restricted to Xingu basin (upper Xingu, lower Xingu)
*Monotocheirodon drilos**	Endemic – Beni-Madre de Dios
*Monotocheirodon kontos**	Endemic – Beni-Madre de Dios
*Monotocheirodon pearsoni**	Endemic – Beni-Madre de Dios
*Odontostilbe dierythrura**	Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
*Odontostilbe ecuadorensis**	Marañon-Nanay, Napo-Ambyiacu, Putumayo
*Odontostilbe euspilurus**	Beni-Madre de Dios, Purus, Ucayali, Marañon-Nanay, Napo-Ambyiacu
*Odontostilbe fugitiva**	Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Amazonas main channel
Odontostilbe gracilis	Branco, Maroni-Approuague, Corentyne-Demerara, Essequibo, lower Orinoco
*Odontostilbe nareuda**	Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus
Odontostilbe paraguayensis	Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Paraná-Paraguay

Taxon	Species	Occurrence
*Odontostilbe parecis**		Endemic – Guaporé
Odontostilbe pulchra		Negro, lower Orinoco, upper Orinoco, Apure
Oligosarcus bolivianus		Mamoré, Guaporé, Paraná-Paraguay
Oligosarcus pintoi		Guaporé, Paraná-Paraguay
*Oligosarcus schindleri**		Endemic – Mamoré
*Othonocheirodus eigenmanni**		Endemic – Marañon
*Oxybrycon parvulus**		Middle-lower Madeira, Ucayali
Paracheirodon axelrodi		Negro, Coppename-Suriname-Saramacca, upper Orinoco
*Paracheirodon innesi**		Middle-lower Madeira, Purus, Ucayali, Putumayo, Japurá, Amazonas main channel
Paracheirodon simulans		Negro, Branco, upper Orinoco
Paragoniates alburnus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Napo-Ambyiacu, Putumayo, Japurá, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Parapristella aubynei		Branco, Corentyne-Demerara, Essequibo, upper Orinoco
Parapristella georgiae		Araguaia, Branco, lower Orinoco, upper Orinoco, Apure
*Parecbasis cyclolepis**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali
*Petitella georgiae**		Middle-lower Madeira, Purus, Marañon-Nanay, Negro
*Phallobrycon adenacanthus**		Restricted to Xingu basin (upper Xingu, Iriri)
*Phallobrycon synarmacanthus**		Endemic – lower Xingu
*Phenacogaster beni**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries
*Phenacogaster capitulata**		Juruá, Ucayali
*Phenacogaster eurytaenia**		Endemic – upper Tocantins
*Phenacogaster microstictus**		Branco, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Phenacogaster naevata**		Endemic – upper Tocantins
*Phenacogaster napoatilis**		Endemic – Napo-Ambyiacu
*Phenacogaster ojitatus**		Endemic – Iriri
*Phenacogaster pectinatus**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Putumayo, Japurá, Amazonas main channel
Phenacogaster prolatus		Negro, upper Orinoco
*Phenacogaster retropinnus**		Upper Xingu, middle-lower Madeira, Madeira Shield Tributaries, Negro
*Phycocharax rasbora**		Endemic – Teles Pires
*Piabucus caudomaculatus**		Restricted to Madeira basin (Mamoré, Guaporé)
Piabucus dentatus		Amazonas Estuary, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco
Piabucus melanostoma		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Paraná-Paraguay
Poptella brevispina		Lower Tocantins, Branco, Trombetas, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
*Poptella compressa**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Japurá, Branco, Parnaíba, Itapicuru-Mearim, Essequibo, lower Orinoco, upper Orinoco, Apure

Taxon	Species	Occurrence
Poptella longipinnis		Lower Tocantins, Branco, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Priocharax ariel		Middle-lower Madeira, Negro, Amazonas main channel, upper Orinoco
*Priocharax nanus**		Endemic – Negro
*Priocharax pygmaeus**		Endemic – Amazonas main channel
*Prionobrama filigera**		Lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Amazonas main channel
Pristella maxillaris		Lower Tocantins, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Prodontocharax alleni**		Mamoré, middle-lower Madeira, Ucayali, Amazonas main channel
*Prodontocharax howesi**		Endemic – Mamoré
*Prodontocharax melanotus**		Mamoré, Guaporé, Beni-Madre de Dios, Purus, Ucayali
*Protocheirodon pi**		Middle-lower Madeira, Purus, Ucayali, Amazonas main channel
Ptychocharax rhyacophila		Negro, upper Orinoco
Rhinobrycon negrensis		Negro, upper Orinoco
*Rhinopetitia myersi**		Endemic – Araguaia
*Rhinopetitia potamorhachia**		Endemic – Teles Pires
Roeboexodon guyanensis		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Juruena, Tapajós, Jamanxim, Jari, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara
Roeboides affinis		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Jutaí, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Roeboides biserialis**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Amazonas main channel
Roeboides descalvadensis		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Trombetas, Amazonas main channel, Amazonas Estuary, Paraná-Paraguay
*Roeboides dispar**		Mamoré, middle-lower Madeira, Juruá, Ucayali
Roeboides myersii		Araguaia, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Trombetas, Amazonas main channel, lower Orinoco
*Roeboides oligistos**		Tapajós, Negro, Branco, Trombetas
Salminus brasiliensis		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Paraná-Paraguay
Salminus hilarii		Upper Tocantins, Araguaia, lower Tocantins, Guaporé, Beni-Madre de Dios, Putumayo, Japurá, Branco, Paraná-Paraguay
"Salminus iquitensis"		Upper Tocantins, Araguaia, lower Tocantins, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Putumayo, Japurá, Branco, upper Orinoco, Apure
Schultzites axelrodi		Negro, upper Orinoco
*Scopaeocharax atopodus**		Endemic – Marañon
*Scopaeocharax rhinodus**		Endemic – Marañon
Serrabrycon magoi		Negro, lower Orinoco, upper Orinoco, Apure

Taxon	Species	Occurrence
*Serrapinnus aster**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Serrapinnus lucindai**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Serrapinnus malabarbai**		Endemic – Araguaia
Serrapinnus microdon		Beni-Madre de Dios, middle-lower Madeira, Paraná-Paraguay
*Serrapinnus micropterus**		Araguaia, Teles Pires, Tapajós, Mamoré, middle-lower Madeira, Amazonas main channel
Serrapinnus notomelas		Teles Pires, Paraná-Paraguay
*Serrapinnus sterbai**		Endemic – upper Tocantins
*Serrapinnus tocantinensis**		Restricted to Tocantins basin (upper Tocantins, Araguaia, lower Tocantins)
*Stethaprion crenatum**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Amazonas main channel, Amazonas Estuary
*Stethaprion erythrops**		Ucayali, Marañon-Nanay, Amazonas main channel
*Stichonodon insignis**		Purus, Amazonas main channel
*Tetragonopterus anostomus**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Tetragonopterus araguaiensis**		Endemic – Araguaia
Tetragonopterus argenteus		Upper Tocantins, Araguaia, upper Xingu, lower Xingu, Beni-Madre de Dios, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Amazonas main channel, Parnaíba, Essequibo, upper Orinoco, Paraná-Paraguay
*Tetragonopterus carvalhoi**		Endemic – Jari
Tetragonopterus chalceus		Upper Tocantins, Araguaia, upper Xingu, lower Xingu, Teles Pires, Guaporé, Madeira Shield Tributaries, Napo-Ambyiacu, Negro, Branco, Amazonas main channel, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
*Tetragonopterus denticulatus**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Tetragonopterus juruena**		Restricted to Tapajós basin (Teles Pires, Juruena)
*Tetragonopterus kuluene**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
*Tetragonopterus manaos**		Tefé, Negro, Urubu-Uatumã, Trombetas, Amazonas main channel
*Tetragonopterus ommatus**		Endemic – Tapajós
Tetragonopterus rarus		Jari, Maroni-Approuague, Corentyne-Demerara
Thayeria boehlkei		Araguaia, upper Xingu, Teles Pires, Guaporé, Putumayo, Japurá, upper Orinoco
Thayeria obliqua		Mamoré, Guaporé, Putumayo, upper Orinoco
*Thayeria tapajonica**		Restricted to Tapajós basin (Teles Pires, Tapajós)
Thrissobrycon pectinifer		Negro, Essequibo, upper Orinoco
*Triportheus albus**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary
Triportheus angulatus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Tefé, Juruá, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Essequibo
Triportheus auritus		Upper Tocantins, Araguaia, lower Tocantins, lower Xingu, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Purus, Javari, Putumayo, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Essequibo, lower Orinoco, upper Orinoco, Apure

Taxon	Species	Occurrence
Triportheus brachipomus		Upper Xingu, lower Xingu, Juruena, Tapajós, Negro, Branco, Trombetas, Jari, Araguari-Macari-Amapá, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Triportheus culter**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Ucayali, Napo-Ambyiacu
*Triportheus curtus**		Purus, Ucayali, Amazonas Estuary
*Triportheus pictus**		Jutaí, Japurá, Amazonas main channel, Amazonas Estuary
Triportheus rotundatus		Upper Xingu, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, Purus, Ucayali, Branco, Amazonas main channel, Amazonas Estuary, Corentyne-Demerara, Essequibo
*Triportheus trifurcatus**		Restricted to Tocantins basin (upper Tocantins, Araguaia, lower Tocantins)
*Trochilocharax ornatus***		
*Tucanoichthys tucano**		Endemic – Negro
*Tyttobrycon dorsimaculatus**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
*Tyttobrycon hamatus**		Endemic – Marañon
*Tyttobrycon marajoara**		Endemic – Amazonas Estuary
*Tyttobrycon spinosus**		Endemic – Mamoré
*Tyttobrycon xeruini**		Tapajós, Negro, Branco
*Tyttocharax cochui**		Endemic – Amazonas main channel
Tyttocharax madeirae		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Urubu-Uatumã, Amazonas main channel, Capim
*Tyttocharax tambopatensis**		Restricted to Madeira basin (Beni-Madre de Dios, middle-lower Madeira)
*Xenurobrycon coracoralinae**		Endemic – Araguaia
*Xenurobrycon heterodon**		Purus, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Japurá
*Xenurobrycon polyancistrus**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
*Xenurobrycon pteropus**		Endemic – Amazonas main channel
*Xenurobrycon varii**		Restricted to Tapajós basin (Tapajós, Jamanxim)
Chilodontidae	7	
Caenotropus labyrinthicus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Coari-Urucu, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Parnaíba, Capim, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Caenotropus maculosus		Trombetas, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
Caenotropus mestomorgmatos		Japurá, Negro, Amazonas main channel, lower Orinoco, upper Orinoco
*Caenotropus schizodon**		Restricted to Tapajós basin (Teles Pires, Juruena)
*Chilodus fritillus**		Endemic – Beni-Madre de Dios
Chilodus gracilis		Madeira Shield Tributaries, Putumayo, Negro, Amazonas main channel, upper Orinoco
Chilodus punctatus		Upper Tocantins, Araguaia, lower Tocantins, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Jutaí, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Capim, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure

Taxon	Species	Occurrence
Crenuchidae	47	
Ammocryptocharax elegans		Teles Pires, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Negro, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Ammocryptocharax minutus		Negro, Branco, lower Orinoco, upper Orinoco
Ammocryptocharax vintonae		Trombetas, Essequibo, lower Orinoco
Characidium boaevistae		Branco, lower Orinoco, upper Orinoco, Apure, Maracaibo, Cauca-Magdalena-Sinu
*Characidium boehlkei**		Endemic – Napo-Ambyiacu
*Characidium bolivianum**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios)
*Characidium crandellii**		Endemic – Branco
Characidium declivirostre		Negro, lower Orinoco, upper Orinoco
*Characidium etheostoma**		Endemic – Amazonas main channel
Characidium fasciatum		Mamoré, Guaporé, Beni-Madre de Dios, Juruá, Putumayo, Japurá, Amazonas main channel, Essequibo, Cauca-Magdalena-Sinu, Paraná-Paraguay
Characidium hasemani		Branco, Essequibo
*Characidium heinianum**		Restricted to Madeira basin (Mamoré, Guaporé)
Characidium longum		Negro, lower Orinoco, upper Orinoco
*Characidium mirim**		Endemic – Araguaia
*Characidium nana**		Iriri, Tapajós
*Characidium papachibe**		Endemic – Amazonas main channel
Characidium pellucidum		Branco, Amazonas main channel, Maroni-Approuague, Essequibo, lower Orinoco, upper Orinoco, Apure
Characidium pteroides		Branco, Corentyne-Demerara, Essequibo, upper Orinoco
*Characidium purpuratum**		Guaporé, Ucayali, Napo-Ambyiacu
*Characidium roesseli**		Endemic – Amazonas main channel
*Characidium schindleri**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
Characidium steindachneri		Guaporé, Ucayali, Napo-Ambyiacu, Japurá, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
*Characidium stigmosum**		Endemic – upper Tocantins
*Characidium summum**		Endemic – Middle-lower Madeira
Characidium xanthopterum		Upper Tocantins, Paraná-Paraguay
*Characidium xavante**		Endemic – upper Xingu
Characidium zebra		Upper Tocantins, Araguaia, Iriri, Mamoré, Guaporé, Beni-Madre de Dios, Japurá, Branco, Amazonas main channel, Parnaíba, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Crenuchus spilurus**		Lower Tocantins, lower Xingu, Tapajós, Mamoré, middle-lower Madeira, Purus, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
Elachocharax geryi		Negro, Branco, lower Orinoco, upper Orinoco, Apure
Elachocharax junki		Middle-lower Madeira, Negro, Branco, Amazonas main channel, Essequibo
Elachocharax mitopterus		Negro, Branco, upper Orinoco

Taxon	Species	Occurrence
Elachocharax pulcher		Teles Pires, Tapajós, Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Geryichthys sterbai**		Endemic – Ucayali
*Klausewitzia ritae**		Javari, Ucayali, Amazonas main channel
Leptocharacidium omospilus		Negro, upper Orinoco
*Melanocharacidium auroradiatum**		Araguaia, upper Xingu, Iriri, Teles Pires
Melanocharacidium depressum		Upper Xingu, Negro, Branco, Urubu-Uatumã, Amazonas main channel, upper Orinoco
Melanocharacidium dispilomma		Upper Xingu, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Javari, Ucayali, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Melanocharacidium nigrum**		Endemic – Branco
Melanocharacidium pectorale		Mamoré, Guaporé, Madeira Shield Tributaries, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco
*Melanocharacidium rex**		Endemic – Marañon
Microcharacidium eleotrioides		Mamoré, Guaporé, middle-lower Madeira, Branco, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
*Microcharacidium geryi**		Endemic – Ucayali
Microcharacidium gnomus		Negro, lower Orinoco, upper Orinoco
Microcharacidium weitzmani		Lower Tocantins, Tapajós, Mamoré, Guaporé, Napo-Ambyiacu, Negro, Jari, Amazonas Estuary, Capim, upper Orinoco
Odontocharacidium aphanes		Middle-lower Madeira, Purus, Juruá, Negro, Branco, Amazonas main channel, upper Orinoco
Poecilocharax weitzmani		Negro, Branco, Urubu-Uatumã, Amazonas main channel, lower Orinoco, upper Orinoco
Curimatidae	74	
*Curimata acutirostris**		Restricted to Tocantins basin (upper Tocantins, Araguaia, lower Tocantins)
*Curimata aspera**		Mamoré, Guaporé, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Amazonas main channel
Curimata cerasina		Japurá, lower Orinoco, Apure
*Curimata cisandina**		Ucayali, Branco, Amazonas main channel
Curimata cyprinoides		Upper Tocantins, lower Tocantins, upper Xingu, lower Xingu, Branco, Trombetas, Jari, Amazonas Estuary, Capim, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Curimata incompta		Amazonas main channel, lower Orinoco, upper Orinoco
*Curimata inornata**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Branco, Trombetas, Amazonas main channel
*Curimata knerii**		Teles Pires, Tapajós, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Negro, Trombetas, Jari, Amazonas main channel

Taxon	Species	Occurrence
Curimata ocellata		Lower Tocantins, upper Xingu, lower Xingu, Tapajós, Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, lower Orinoco, upper Orinoco
Curimata roseni		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Curimata vittata		Lower Tocantins, upper Xingu, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Tefé, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Curimatella alburnus		Lower Tocantins, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Essequibo
Curimatella dorsalis		Araguaia, lower Tocantins, upper Xingu, Teles Pires, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Japurá, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Curimatella immaculata**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Juruá, Ucayali, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Parnaíba, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Curimatella meyeri**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel
Curimatopsis cryptica		Araguaia, lower Xingu, Tapajós, Mamoré, middle-lower Madeira, Negro, Branco, Trombetas, Amazonas main channel, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
Curimatopsis evelynae		Tapajós, Japurá, Negro, Branco, Amazonas main channel, upper Orinoco, Apure
*Curimatopsis guaporensis**		Restricted to Madeira basin (Guaporé, middle-lower Madeira)
*Curimatopsis jaci**		Endemic – Teles Pires
Curimatopsis macrolepis		Araguaia, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Ucayali, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Curimatopsis maculosa**		Endemic – Tapajós
*Curimatopsis melanura**		Endemic – Trombetas
*Curimatopsis microlepis**		Purus, Amazonas main channel
*Curimatopsis pallida**		Endemic – Negro
Cyphocharax abramoides		Lower Xingu, Tapajós, middle-lower Madeira, Branco, Urubu-Uatumã, Trombetas, Capim, upper Orinoco
*Cyphocharax aninha**		Endemic – Paru
Cyphocharax biocellatus		Teles Pires, Maroni-Approuague
*Cyphocharax boiadeiro**		Endemic – Araguaia
*Cyphocharax derhami**		Ucayali, Marañon-Nanay

Taxon	Species	Occurrence
Cyphocharax festivus		Upper Xingu, lower Xingu, Tapajós, middle-lower Madeira, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Branco, Amazonas main channel, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Cyphocharax gangamon**		Restricted to Tapajós basin (Juruena, Tapajós)
Cyphocharax gouldingi		Araguaia, lower Tocantins, lower Xingu, Napo-Ambyiacu, Capim, Araguari-Macari-Amapá, Oiapoque, lower Orinoco
Cyphocharax helleri		Jari, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
*Cyphocharax laticlavius**		Endemic – Napo-Ambyiacu
Cyphocharax leucostictus		Upper Tocantins, Araguaia, upper Xingu, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Negro, Branco, Amazonas main channel, Araguari-Macari-Amapá, Essequibo, lower Orinoco, upper Orinoco
*Cyphocharax mestomyllon**		Endemic – Negro
Cyphocharax microcephalus		Branco, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
Cyphocharax multilineatus		Negro, Branco, upper Orinoco
*Cyphocharax muyrakytan**		Endemic – Tapajós
*Cyphocharax nigripinnis**		Tapajós, middle-lower Madeira, Putumayo, Japurá, Negro, Branco, Amazonas main channel
Cyphocharax notatus		Araguaia, lower Tocantins, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Napo-Ambyiacu, Negro, Amazonas main channel, Capim
*Cyphocharax pantostictos**		Purus, Napo-Ambyiacu, Putumayo, Amazonas main channel
*Cyphocharax plumbeus**		Araguaia, lower Tocantins, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Juruá, Negro, Branco, Amazonas main channel
*Cyphocharax sanctigabrielis**		Endemic – Negro
*Cyphocharax signatus**		Endemic – Araguaia
*Cyphocharax spiluropsis**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Negro, Amazonas main channel
Cyphocharax spilurus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós, Jamanxim, Guaporé, Putumayo, Negro, Branco, Trombetas, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Cyphocharax stilbolepis**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Amazonas main channel
Cyphocharax vanderi		Upper Tocantins, Paraná-Paraguay
*Cyphocharax vexillapinnus**		Marañon-Nanay, Napo-Ambyiacu, Amazonas main channel
Potamorhina altamazonica		Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Putumayo, Japurá, Negro, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Potamorhina latior**		Iriri, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel
Potamorhina pristigaster		Middle-lower Madeira, Purus, Ucayali, Napo-Ambyiacu, Japurá, Branco, Urubu-Uatumã, Amazonas main channel, Itapicuru-Mearim

Taxon	Species	Occurrence
*Psectrogaster amazonica**		Upper Tocantins, Araguaia, lower Tocantins, Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Juruá, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Trombetas, Amazonas main channel
Psectrogaster ciliata		Negro, Branco, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Psectrogaster curviventris		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Paraná-Paraguay
Psectrogaster essequibensis		Teles Pires, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Branco, Amazonas main channel, Corentyne-Demerara, Essequibo
*Psectrogaster falcata**		Lower Xingu, Tapajós, Jamanxim, middle-lower Madeira, Amazonas main channel, Amazonas Estuary
*Psectrogaster rutiloides**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Putumayo, Trombetas, Amazonas main channel, Amazonas Estuary
*Steindachnerina amazonica**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu
Steindachnerina argentea		Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Steindachnerina bimaculata		Upper Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Javari, Ucayali, Marañon-Nanay, Amazonas main channel, Essequibo, lower Orinoco
Steindachnerina binotata		Mamoré, Beni-Madre de Dios, Amazonas main channel, Itapicuru-Mearim
Steindachnerina brevipinna		Upper Tocantins, Iriri, Paraná-Paraguay
*Steindachnerina dobula**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Amazonas main channel
*Steindachnerina fasciata**		Teles Pires, Juruena, Madeira Shield Tributaries
*Steindachnerina gracilis**		Restricted to Tocantins basin (Araguaia, lower Tocantins)
Steindachnerina guentheri		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
*Steindachnerina hypostoma**		Beni-Madre de Dios, middle-lower Madeira, Juruá, Javari, Ucayali, Marañon-Nanay, Putumayo, Branco, Amazonas main channel
*Steindachnerina leucisca**		Upper Tocantins, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Coari-Urucu, Juruá, Javari, Ucayali, Marañon-Nanay, Trombetas, Amazonas main channel
*Steindachnerina notograptos**		Endemic – upper Tocantins
Steindachnerina planiventris		Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Napo-Ambyiacu, Japurá, Negro, Branco, Amazonas main channel, Essequibo
*Steindachnerina quasimodoi**		Javari, Amazonas main channel
*Steindachnerina seriata**		Endemic – Jamanxim
Cynodontidae	10	
Cynodon gibbus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Cynodon septenarius		Teles Pires, Tapajós, Madeira Shield Tributaries, Tefé, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco

Taxon	Species	Occurrence
Hydrolycus armatus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Capim, Essequibo, lower Orinoco, upper Orinoco, Apure
*Hydrolycus scomberoides**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Juruá, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel
Hydrolycus tatauaia		Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Capim, Essequibo, lower Orinoco, upper Orinoco, Apure
Hydrolycus wallacei		Japurá, Negro, Branco, upper Orinoco
*Rhaphiodon vulpinus**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Javari, Ucayali, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Roestes itupiranga**		Endemic – lower Tocantins
Roestes molossus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Amazonas main channel, Essequibo
Roestes ogilviei		Juruá, Marañon-Nanay, Negro, Branco, Essequibo
Ctenoluciidae	5	
Boulengerella cuvieri		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Javari, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Araguari-Macari-Amapá, Oiapoque, Essequibo, lower Orinoco, upper Orinoco, Apure
Boulengerella lateristriga		Japurá, Negro, Branco, upper Orinoco
Boulengerella lucius		Upper Xingu, Tapajós, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Boulengerella maculata		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, lower Orinoco, upper Orinoco
Boulengerella xyrekes		Tefé, Javari, Putumayo, Japurá, Negro, Branco, Trombetas, lower Orinoco, upper Orinoco, Apure
Erythrinidae	5	
*Erythrinus erythrinus**		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Jutaí, Ucayali, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
Hoplerythrinus unitaeniatus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Juruá, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, Capim, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay

Taxon	Species	Occurrence
Hoplias aimara		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Urubu-Uatumã, Trombetas, Jari, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
Hoplias curupira		Upper Tocantins, lower Tocantins, upper Xingu, lower Xingu, Tapajós, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Capim, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
Hoplias malabaricus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, Capim, Maroni-Approuague, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Maracaibo, Cauca-Magdalena-Sinu, Atrato, Paraná-Paraguay
Gasteropelecidae	8	
Carnegiella marthae		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Putumayo, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Carnegiella myersi		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Juruá, Ucayali, Marañon-Nanay, Putumayo, Amazonas main channel, lower Orinoco
*Carnegiella schereri**		Endemic – Napo-Ambyiacu
*Carnegiella strigata**		Lower Tocantins, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Tefé, Juruá, Javari, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
*Gasteropelecus levis**		Amazonas main channel, Amazonas Estuary
Gasteropelecus sternicla		Lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Putumayo, Japurá, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
*Thoracocharax securis**		Mamoré, Guaporé, Purus, Juruá, Putumayo, Amazonas main channel
Thoracocharax stellatus		Upper Tocantins, Araguaia, lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Napo-Ambyiacu, Putumayo, Japurá, Negro, Amazonas main channel, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Hemiodontidae	26	
*Anodus elongatus**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel
Anodus orinocensis		Araguaia, lower Tocantins, middle-lower Madeira, Madeira Shield Tributaries, Juruá, Negro, Branco, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Argonectes longiceps		Tapajós, middle-lower Madeira, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Maroni-Approuague, Essequibo, lower Orinoco, upper Orinoco, Apure
Argonectes robertsi		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Capim
Bivibranchia fowleri		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, middle-lower Madeira, Madeira Shield Tributaries, Purus, Negro, Branco, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure

Taxon	Species	Occurrence
*Bivibranchia notata**		Lower Tocantins, Teles Pires, Tapajós, Trombetas
*Bivibranchia velox**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu
Hemiodus amazonum		Teles Pires, middle-lower Madeira, Madeira Shield Tributaries, Marañon-Nanay, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
Hemiodus argenteus		Upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, Japurá, Negro, Branco, Amazonas main channel, Itapicuru-Mearim, Capim, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Hemiodus atranalis**		Middle-lower Madeira, Ucayali, Negro, Branco, Amazonas main channel
Hemiodus goeldii		Araguaia, lower Tocantins, lower Xingu, Putumayo, Negro, Branco, Araguari-Macari-Amapá
Hemiodus gracilis		Araguaia, Tapajós, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Ucayali, Putumayo, Japurá, Negro, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Hemiodus immaculatus		Upper Xingu, lower Xingu, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Purus, Jutaí, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Hemiodus iratapuru**		Endemic – Jari
*Hemiodus jatuarana**		Endemic – Trombetas
*Hemiodus langeanii**		Endemic – Amazonas main channel
Hemiodus microlepis		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Teles Pires, Juruena, Jamanxim, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Putumayo, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
Hemiodus quadrimaculatus		Teles Pires, Branco, Trombetas, Araguari-Macari-Amapá, Oiapoque, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
Hemiodus semitaeniatus		Araguaia, upper Xingu, Iriri, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Negro, Branco, Urubu-Uatumã, Amazonas main channel, Amazonas Estuary, Capim, Essequibo, lower Orinoco, upper Orinoco, Paraná-Paraguay
*Hemiodus sterni**		Restricted to Tapajós basin (Teles Pires, Juruena, Jamanxim)
Hemiodus ternetzi		Upper Tocantins, lower Tocantins, upper Xingu, lower Orinoco
Hemiodus thayeria		Negro, Amazonas main channel, Essequibo, upper Orinoco
*Hemiodus tocantinensis**		Upper Tocantins, Araguaia, lower Tocantins, Iriri, lower Xingu
Hemiodus unimaculatus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Ucayali, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
Hemiodus vorderwinkleri		Upper Xingu, Iriri, lower Xingu, Amazonas main channel, lower Orinoco
*Micromischodus sugillatus**		Negro, Urubu-Uatumã, Trombetas, Amazonas main channel
Lebiasinidae	49	
*Copeina guttata**		Lower Xingu, Juruá, Putumayo, Trombetas, Amazonas main channel, Amazonas Estuary
*Copeina osgoodi**		Putumayo, Amazonas main channel

Taxon	Species	Occurrence
*Copella arnoldi**		Jari, Amazonas main channel, Amazonas Estuary, Capim, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, Atl. Coastal Drainages of Col. Ven.
*Copella callolepis**		Middle-lower Madeira, Purus, Ucayali, Marañon-Nanay, Putumayo, Trombetas, Jari, Amazonas main channel, Amazonas Estuary
*Copella compta**		Endemic – Negro
Copella eigenmanni		Putumayo, Japurá, Negro, lower Orinoco, upper Orinoco, Apure, Atl. Coastal Drainages of Col. Ven.
Copella nattereri		Tapajós, middle-lower Madeira, Negro, Branco, Trombetas, Amazonas main channel, Essequibo, upper Orinoco
*Copella vilmae**		Endemic – Amazonas main channel
*Lebiasina bimaculata**		Endemic – Marañon
*Lebiasina elongata**		Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá
Lebiasina erythrinoides		Japurá, upper Orinoco, Apure, Maracaibo
*Lebiasina intermedia***		
*Lebiasina marilynae**		Endemic – Iriri
*Lebiasina melanoguttata**		Iriri, Teles Pires
*Lebiasina minuta**		Endemic – Iriri
Lebiasina yepezi		Negro, Branco, upper Orinoco
Nannostomus beckfordi		Tapajós, Amazonas main channel, Gurupi-Turiaçu, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
Nannostomus bifasciatus		Branco, Maroni-Approuague, Coppename-Suriname-Saramacca
*Nannostomus britskii**		Tapajós, Jamanxim, Madeira Shield Tributaries, Urubu-Uatumã, Amazonas main channel
Nannostomus digrammus		Tapajós, Mamoré, Guaporé, middle-lower Madeira, Purus, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, upper Orinoco
Nannostomus eques		Lower Tocantins, lower Xingu, Tapajós, middle-lower Madeira, Purus, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Essequibo, lower Orinoco, upper Orinoco, Apure
*Nannostomus grandis***		
Nannostomus harrisoni		Guaporé, Putumayo, Branco, Trombetas, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
*Nannostomus limatus**		Endemic – Amazonas main channel
Nannostomus marginatus		Purus, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
Nannostomus marilynae		Madeira Shield Tributaries, Negro, upper Orinoco
*Nannostomus mortenthaleri**		Endemic – Marañon
Nannostomus nitidus		Amazonas Estuary, Capim
*Nannostomus rubrocaudatus***		
Nannostomus trifasciatus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Tefé, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Amazonas main channel, Capim, Essequibo, upper Orinoco

Taxon	Species	Occurrence
Nannostomus unifasciatus		Lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Pyrrhulina australis		Araguaia, upper Xingu, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Jari, Amazonas main channel, Paraná-Paraguay
*Pyrrhulina beni**		Beni-Madre de Dios
Pyrrhulina brevis		Mamoré, Guaporé, Beni-Madre de Dios, Putumayo, Negro, Urubu-Uatumã, Amazonas main channel, lower Orinoco, upper Orinoco
Pyrrhulina eleanorae		Ucayali, Napo-Ambyiacu, upper Orinoco
*Pyrrhulina elongata**		Tapajós
Pyrrhulina filamentosa		Branco, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
*Pyrrhulina laeta**		Putumayo, Amazonas main channel
Pyrrhulina lugubris		Japurá, lower Orinoco, upper Orinoco, Apure
*Pyrrhulina marilynae**		Iriri, Teles Pires, Juruena, Tapajós
*Pyrrhulina maxima**		Amazonas main channel
*Pyrrhulina melanostomus**		Mamoré, Beni-Madre de Dios
*Pyrrhulina obermulleri**		Amazonas main channel
*Pyrrhulina rachoviana***		
*Pyrrhulina semifasciata**		Purus, Juruá, Negro, Branco, Amazonas main channel, Amazonas Estuary
*Pyrrhulina spilota**		Mamoré, Guaporé
Pyrrhulina stoli		Japurá, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
*Pyrrhulina vittata**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Amazonas main channel
*Pyrrhulina zigzag**		Ucayali
Parodontidae	10	
*Apareiodon argenteus**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Apareiodon cavalcante**		Endemic – upper Tocantins
Apareiodon machrisi		Upper Tocantins, Araguaia, lower Tocantins, Parnaíba
*Apareiodon tigrinus**		Restricted to Tocantins basin (upper Tocantins, Araguaia, lower Tocantins)
Parodon bifasciatus		Branco, Essequibo
*Parodon buckleyi**		Teles Pires, Juruena, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Jari
Parodon carrikeri		Mamoré, Beni-Madre de Dios, Paraná-Paraguay
Parodon guyanensis		Curuá-Paru do Oeste, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
Parodon nasus		Beni-Madre de Dios, Branco, Paraná-Paraguay
*Parodon pongoensis**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Japurá, Amazonas main channel
Prochilodontidae	8	
*Prochilodus britskii**		Endemic – Juruena

Taxon	Species	Occurrence
Prochilodus mariae		Negro, lower Orinoco, upper Orinoco, Apure
*Prochilodus nigricans**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Trombetas, Jari, Amazonas main channel, Amazonas Estuary
*Prochilodus rubrotaeniatus**		Japurá, Negro, Branco, Trombetas, Amazonas main channel, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
*Semaprochilodus brama**		Araguaia, lower Tocantins, upper Xingu, lower Xingu
Semaprochilodus insignis		Lower Xingu, Juruena, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Purus, Coari-Urucu, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Essequibo, upper Orinoco
Semaprochilodus kneri		Japurá, lower Orinoco, upper Orinoco, Apure
*Semaprochilodus taeniurus**		Middle-lower Madeira, Madeira Shield Tributaries, Japurá, Negro, Branco, Trombetas, Amazonas main channel
Serrasalmidae	72	
*Acnodon normani**		Upper Tocantins, lower Tocantins, upper Xingu, Iriri, lower Xingu
Acnodon oligacanthus		Upper Tocantins, lower Tocantins, Maroni-Approuague, Coppename-Suriname-Saramacca
*Acnodon senai**		Endemic – Jari
Catoprion mento		Araguaia, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Colossoma macropomum		Lower Tocantins, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Japurá, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Metynnis altidorsalis**		Tapajós, middle-lower Madeira, Juruá, Ucayali, Marañon-Nanay, Negro, Branco, Trombetas, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Essequibo, lower Orinoco, upper Orinoco, Apure
*Metynnis anisurus**		Araguaia, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Jari
Metynnis cuiaba		Araguaia, Mamoré, Guaporé, middle-lower Madeira, Capim
Metynnis fasciatus		Araguaia, lower Tocantins, lower Xingu, Tapajós, Amazonas main channel, Capim
Metynnis guaporensis		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Juruá, Marañon-Nanay, Negro, Urubu-Uatumã, Amazonas main channel, Capim, lower Orinoco, upper Orinoco, Apure
Metynnis hypsauchen		Teles Pires, Tapajós, middle-lower Madeira, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Metynnis lippincottianus		Araguaia, lower Tocantins, Teles Pires, Mamoré, Guaporé, middle-lower Madeira, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, lower Orinoco, Paraná-Paraguay
Metynnis longipinnis		Purus, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco
Metynnis luna		Araguaia, lower Tocantins, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Juruá, Putumayo, Japurá, Branco, Essequibo, lower Orinoco, upper Orinoco, Apure

Taxon	Species	Occurrence
Metynnis maculatus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Marañon-Nanay, Putumayo, Negro, Branco, Trombetas, Essequibo, lower Orinoco, upper Orinoco, Paraná-Paraguay
Metynnis melanogrammus		Madeira Shield Tributaries, Negro, Branco, Urubu-Uatumã, Trombetas, upper Orinoco
Mylesinus paraschomburgkii		Urubu-Uatumã, Trombetas, Jari, Araguari-Macari-Amapá
*Mylesinus paucisquamatus**		Restricted to Tocantins basin (upper Tocantins, Araguaia, lower Tocantins)
*Myleus pachyodus**		Restricted to Tapajós basin (Teles Pires, Jamanxim)
Myleus rhomboidalis		Upper Xingu, Putumayo, Branco, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
Myleus setiger		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
Myleus torquatus		Upper Tocantins, Araguaia, lower Tocantins, middle-lower Madeira, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
*Myloplus arnoldi**		Araguaia, upper Xingu, Teles Pires, Branco
Myloplus asterias		Upper Tocantins, lower Tocantins, Teles Pires, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Japurá, Branco, Parnaíba, lower Orinoco, upper Orinoco
*Myloplus lobatus**		Mamoré, middle-lower Madeira, Branco
*Myloplus lucienae**		Endemic – Negro
Myloplus rubripinnis		Jari, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
Myloplus schomburgkii		Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Madeira Shield Tributaries, Marañon-Nanay, Putumayo, Japurá, Negro, Trombetas, lower Orinoco, upper Orinoco, Apure
*Myloplus zorroi**		Endemic – Madeira Shield Tributaries
Mylossoma albiscopum		Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Negro, Branco, Trombetas, Amazonas main channel, lower Orinoco
*Mylossoma aureum**		Mamoré, middle-lower Madeira, Purus, Juruá, Amazonas main channel
*Mylossoma unimaculatum**		Restricted to Tocantins basin (Araguaia, lower Tocantins)
*Ossubtus xinguense**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
Piaractus brachypomus		Upper Tocantins, Araguaia, lower Tocantins, lower Xingu, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Putumayo, Japurá, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Pristobrycon aureus		Upper Xingu, Putumayo, Japurá, Corentyne-Demerara, Essequibo
Pristobrycon calmoni		Lower Tocantins, Putumayo, Japurá, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Pristobrycon careospinus		Putumayo, Japurá, upper Orinoco
Pristobrycon maculipinnis		Japurá, upper Orinoco
Pristobrycon striolatus		Upper Xingu, Madeira Shield Tributaries, Putumayo, Japurá, Negro, Branco, Trombetas, Maroni-Approuague, Essequibo, lower Orinoco, upper Orinoco, Apure

Taxon	Species	Occurrence
Pygocentrus nattereri		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Putumayo, Japurá, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, Essequibo, Paraná-Paraguay
Pygopristis denticulata		Lower Tocantins, Guaporé, Branco, Trombetas, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, Upper Orinoco, Apure
*Serrasalmus altispinis**		Endemic – Branco
Serrasalmus altuvei		Japurá, Negro, Branco, lower Orinoco, upper Orinoco, Apure
*Serrasalmus compressus**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Amazonas main channel
Serrasalmus eigenmanni		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Corentyne-Demerara, Essequibo
Serrasalmus elongatus		Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Serrasalmus geryi**		Restricted to Tocantins basin (Araguaia, lower Tocantins)
*Serrasalmus gibbus**		Araguaia, lower Tocantins, Trombetas
Serrasalmus gouldingi		Putumayo, Negro, Branco, upper Orinoco
*Serrasalmus hastatus**		Negro, Branco, Amazonas main channel
*Serrasalmus hollandi**		Upper Xingu, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Negro, Trombetas, Amazonas main channel
*Serrasalmus humeralis**		Araguaia, upper Xingu, Iriri, lower Xingu, Madeira Shield Tributaries, Putumayo, Japurá, Amazonas main channel
Serrasalmus irritans		Putumayo, lower Orinoco, upper Orinoco, Apure
Serrasalmus maculatus		Araguaia, lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Urubu-Uatumã, Amazonas main channel, Araguari-Macari-Amapá, Oiapoque, Paraná-Paraguay
Serrasalmus manueli		Upper Xingu, lower Xingu, Teles Pires, middle-lower Madeira, Madeira Shield Tributaries, Negro, Branco, Urubu-Uatumã, upper Orinoco
Serrasalmus marginatus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Paraná-Paraguay
Serrasalmus medinai		Japurá, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Serrasalmus nigricans***		
*Serrasalmus odyssei**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
Serrasalmus rhombeus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Juruá, Ucayali, Putumayo, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Parnaíba, Itapicuru-Mearim, Araguari-Macari-Amapá, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Serrasalmus sanchezi**		Ucayali, Japurá
Serrasalmus serrulatus		Lower Tocantins, upper Xingu, lower Xingu, Juruá, Branco, Corentyne-Demerara, Essequibo
Serrasalmus spilopleura		Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu

Taxon	Species	Occurrence
*Tometes ancylorhynchus**		Araguaia, lower Tocantins, lower Xingu, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Putumayo, Japurá, Trombetas, Amazonas main channel, Paraná-Paraguay
*Tometes camunani**		Endemic – Trombetas
*Tometes kranponhah**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
Tometes makue		Negro, lower Orinoco, upper Orinoco
*Tometes siderocarajensis**		Endemic – lower Tocantins
Tometes trilobatus		Jari, Araguari-Macari-Amapá, Oiapoque
*Utiaritichthys esguiceroi**		Endemic – Juruena
*Utiaritichthys longidorsalis**		Endemic – Madeira Shield Tributaries
*Utiaritichthys sennaebragai**		Juruena, Guaporé, Paraná-Paraguay
Tarumaniidae	1	
*Tarumania walkerae**		Endemic – Negro
Siluriformes	**956**	
Aspredinidae	23	
Amaralia hypsiura		Lower Tocantins, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, middle-lower Madeira, Napo-Ambyiacu, Japurá, Negro, Branco, Trombetas, Essequibo
Aspredo aspredo		Trombetas, Parnaíba, Itapicuru-Mearim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco
Bunocephalus aleuropsis		Upper Tocantins, Araguaia, upper Xingu, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Juruá, Ucayali, Japurá, Negro, Amazonas main channel, upper Orinoco, Apure
*Bunocephalus amaurus**		Branco, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Bunocephalus coracoideus		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Juruá, Ucayali, Marañon-Nanay, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Essequibo
*Bunocephalus knerii**		Iriri, middle-lower Madeira, Marañon-Nanay, Napo-Ambyiacu, Japurá, Negro
Bunocephalus verrucosus		Tapajós, Purus, Tefé, Juruá, Ucayali, Putumayo, Branco, Amazonas main channel, Maroni-Approuague, Corentyne-Demerara, Essequibo, upper Orinoco
*Ernstichthys intonsus**		Endemic – Napo-Ambyiacu
*Ernstichthys megistus**		Endemic – Marañon
Hoplomyzon atrizona		Branco, Maracaibo
Hoplomyzon papillatus		Mamoré, Napo-Ambyiacu, Apure
*Micromyzon akamai**		Middle-lower Madeira, Amazonas main channel, Amazonas Estuary
Platystacus cotylephorus		Upper Xingu, lower Xingu, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco
*Pseudobunocephalus amazonicus**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Amazonas main channel
*Pseudobunocephalus bifidus**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Napo-Ambyiacu, Amazonas main channel
Pseudobunocephalus iheringii		Guaporé, Paraná-Paraguay

Taxon	Species	Occurrence
*Pseudobunocephalus quadriradiatus**		Endemic – Ucayali
*Pterobunocephalus depressus**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Napo-Ambyiacu, Negro, Trombetas, Amazonas main channel
*Pterobunocephalus dolichurus**		Marañon-Nanay, Negro, Trombetas, Amazonas main channel
*Xyliphius anachoretes**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
Xyliphius lepturus		Beni-Madre de Dios, Purus, Ucayali, Marañon-Nanay, Napo-Ambyiacu, upper Orinoco, Apure
Xyliphius melanopterus		Beni-Madre de Dios, middle-lower Madeira, Purus, Marañon-Nanay, Napo-Ambyiacu, Putumayo, upper Orinoco, Apure
*Xyliphius sofiae**		Endemic – Amazonas main channel
Astroblepidae	17	
*Astroblepus boulengeri***		
*Astroblepus caquetae**		Endemic – Japurá
*Astroblepus festae**		Endemic – Marañon
*Astroblepus formosus**		Endemic – Ucayali
*Astroblepus labialis**		Endemic – Marañon
*Astroblepus longiceps**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
Astroblepus longifilis		Marañon-Nanay, Cauca-Magdalena-Sinu
*Astroblepus mancoi**		Beni-Madre de Dios, Ucayali
*Astroblepus peruanus**		Ucayali, Marañon-Nanay, Napo-Ambyiacu
*Astroblepus pholeter**		Marañon-Nanay, Napo-Ambyiacu
*Astroblepus praeliorum**		Endemic – Marañon
*Astroblepus prenadillus**		Endemic – Marañon
*Astroblepus sabalo**		Endemic – Ucayali
*Astroblepus supramollis**		Ucayali, Marañon-Nanay
*Astroblepus taczanowskii**		Endemic – Ucayali
*Astroblepus theresiae**		Endemic – Marañon
*Astroblepus vanceae**		Endemic – Ucayali
Auchenipteridae	79	
*Ageneiosus akamai**		Purus, Negro, Urubu-Uatumã, Trombetas, Amazonas main channel
*Ageineiosus apiaka**		Endemic – Teles Pires
Ageneiosus dentatus		Araguaia, lower Tocantins, Tapajós, Mamoré, Purus, Negro, Trombetas, Amazonas main channel, Amazonas Estuary, Parnaíba, Araguari-Macari-Amapá, Maroni-Approuague, Corentyne-Demerara, Essequibo, lower Orinoco
Ageneiosus inermis		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Parnaíba, Itapicuru-Mearim, Araguari-Macari-Amapá, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Ageneiosus intrusus		Beni-Madre de Dios, middle-lower Madeira, Purus, Negro, Trombetas, Amazonas main channel, Capim, Essequibo

Taxon	Species	Occurrence
Ageneiosus lineatus		Lower Tocantins, lower Xingu, middle-lower Madeira, Negro, Urubu-Uatumã, Trombetas, Amazonas main channel, upper Orinoco
*Ageneiosus polystictus**		Negro, Urubu-Uatumã, Trombetas, Amazonas main channel
Ageneiosus ucayalensis		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Itapicuru-Mearim, Capim, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Ageneiosus uranophthalmus**		Mamoré, middle-lower Madeira, Purus, Ucayali, Negro, Urubu-Uatumã, Amazonas main channel
Ageneiosus vittatus		Lower Tocantins, upper Xingu, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Negro, Trombetas, Amazonas main channel, lower Orinoco, Apure
Asterophysus batrachus		Negro, Urubu-Uatumã, lower Orinoco, upper Orinoco, Apure
Auchenipterichthys coracoideus		Araguaia, lower Tocantins, Mamoré, middle-lower Madeira, Ucayali, Marañon-Nanay, Branco, Amazonas main channel, Essequibo
Auchenipterichthys longimanus		Araguaia, lower Tocantins, Iriri, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Auchenipterichthys punctatus		Negro, Branco, Urubu-Uatumã, Amazonas main channel, upper Orinoco
Auchenipterichthys thoracatus		Lower Tocantins, upper Xingu, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Amazonas main channel, upper Orinoco
Auchenipterus ambyiacus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Javari, Marañon-Nanay, Napo-Ambyiacu, Negro, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
*Auchenipterus brachyurus**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Urubu-Uatumã, Amazonas main channel
*Auchenipterus britskii**		Mamoré, middle-lower Madeira, Purus, Juruá, Amazonas main channel
Auchenipterus demerarae		Branco, Amazonas main channel, Corentyne-Demerara, Essequibo
*Auchenipterus fordicei**		Endemic – Amazonas main channel
Auchenipterus nigripinnis		Mamoré, Guaporé, Beni-Madre de Dios, Paraná-Paraguay
Auchenipterus nuchalis		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Negro, Branco, Trombetas, Amazonas main channel, Capim, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
Auchenipterus osteomystax		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Tapajós, Trombetas, Amazonas main channel, Paraná-Paraguay
*Centromochlus altae**		Middle-lower Madeira, Japurá
*Centromochlus existimatus**		Madeira Shield Tributaries, Ucayali, Japurá, Trombetas, Amazonas main channel, Amazonas Estuary
Centromochlus heckelii		Lower Tocantins, upper Xingu, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Essequibo, lower Orinoco, upper Orinoco, Apure
*Centromochlus macracanthus**		Endemic – Negro

Taxon	Species	Occurrence
*Centromochlus meridionalis**		Endemic – Teles Pires
*Centromochlus orca**		Urubu-Uatumã, Trombetas
Centromochlus perugiae		Beni-Madre de Dios, middle-lower Madeira, Ucayali, Napo-Ambyiacu, Negro, Amazonas main channel, Paraná-Paraguay
Centromochlus punctatus		Putumayo, Curuá-Paru do Oeste, Maroni-Approuague, Coppename-Suriname-Saramacca, Apure
Centromochlus reticulatus		Purus, Branco, Amazonas main channel, Essequibo
Centromochlus schultzi		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Jari, Essequibo
*Centromochlus simplex**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu
*Entomocorus benjamini**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
*Entomocorus melaphareus**		Endemic – Amazonas main channel
Epapterus dispilurus		Mamoré, Guaporé, middle-lower Madeira, Juruá, Ucayali, Putumayo, Amazonas main channel, Paraná-Paraguay
Gelanoglanis nanonocticolus		Negro, upper Orinoco
*Gelanoglanis pan**		Endemic – Teles Pires
*Gelanoglanis travieso**		Endemic – Marañon
*Gelanoglanis varii**		Endemic – upper Tocantins
Glanidium leopardum		Branco, Maroni-Approuague, Essequibo
*Liosomadoras morrowi**		Purus, Jutaí, Ucayali, Putumayo, Japurá, Amazonas main channel
Liosomadoras oncinus		Negro, Branco, upper Orinoco
"Parauchenipterus" porosus		Lower Xingu, Tapajós, Mamoré, middle-lower Madeira, Ucayali, Urubu-Uatumã, Jari, Amazonas main channel, Amazonas Estuary, Paraná-Paraguay
Pseudauchenipterus nodosus		Lower Tocantins, Amazonas Estuary, Itapicuru-Mearim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
*Pseudepapterus cucuhyensis**		Lower Xingu, Purus, Negro, Trombetas, Amazonas main channel
*Pseudepapterus hasemani**		Middle-lower Madeira, Purus, Negro, Branco, Trombetas, Amazonas main channel
*Spinipterus acsi**		Endemic – Marañon
Tatia aulopygia		Araguaia, lower Tocantins, upper Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Amazonas main channel, Corentyne-Demerara, Essequibo, lower Orinoco, Apure
Tatia brunnea		Negro, Branco, Trombetas, Maroni-Approuague, Coppename-Suriname-Saramacca
*Tatia caxiuanensis**		Endemic – Amazonas Estuary
*Tatia dunni**		Purus, Napo-Ambyiacu, Japurá
Tatia gyrina		Middle-lower Madeira, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara
Tatia intermedia		Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Guaporé, Negro, Branco, Trombetas, Jari, Amazonas main channel, Capim, Araguari-Macari-Amapá, Oiapoque, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
*Tatia melanoleuca**		Endemic – Teles Pires
Tatia musaica		Urubu-Uatumã, Amazonas main channel, lower Orinoco, upper Orinoco
*Tatia nigra**		Negro, Trombetas

Taxon	Species	Occurrence
Tatia strigata		Negro, Amazonas main channel, upper Orinoco
*Tetranematichthys barthemi**		Endemic – Jari
Tetranematichthys quadrifilis		Mamoré, Guaporé, middle-lower Madeira, Trombetas, lower Orinoco, upper Orinoco, Apure
Tetranematichthys wallacei		Lower Tocantins, lower Xingu, Tapajós, Ucayali, Negro, Urubu-Uatumã, Amazonas main channel, Capim, upper Orinoco
*Tocantinsia piresi**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Jari
Trachelyichthys decaradiatus		Amazonas main channel, Essequibo
*Trachelyichthys exilis**		Endemic – Marañon
Trachelyopterichthys taeniatus		Guaporé, middle-lower Madeira, Purus, Javari, Negro, Branco, Urubu-Uatumã, Amazonas main channel, upper Orinoco
*Trachelyopterus brevibarbis***		
Trachelyopterus ceratophysus		Upper Xingu, Guaporé, Beni-Madre de Dios, Negro, Branco, Trombetas, Essequibo
Trachelyopterus coriaceus		Araguaia, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, Jari, Amazonas main channel, Amazonas Estuary, Oiapoque, Paraná-Paraguay
*Trachelyopterus isacanthus***		
Trachelyopterus galeatus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, Gurupi-Turiaçu, Araguari-Macari-Amapá, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Trachycorystes menezesi**		Endemic – Madeira Shield Tributaries
Trachycorystes trachycorystes		Araguaia, upper Xingu, middle-lower Madeira, Purus, Negro, Branco, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
*Tympanopleura atronasus**		Mamoré, Guaporé, middle-lower Madeira, Purus, Juruá, Ucayali, Negro, Branco, Jari, Amazonas main channel
*Tympanopleura brevis**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Marañon-Nanay, Putumayo, Negro, Amazonas main channel
*Tympanopleura cryptica**		Middle-lower Madeira, Ucayali, Amazonas main channel
*Tympanopleura longipinna**		Purus, Ucayali, Amazonas main channel
Tympanopleura piperata		Middle-lower Madeira, Jutaí, Japurá, Negro, Branco, Amazonas main channel, Essequibo
*Tympanopleura rondoni**		Mamoré, Guaporé, middle-lower Madeira, Amazonas main channel
Callichthyidae	133	
*Aspidoras albater**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Aspidoras belenos**		Endemic – Araguaia
*Aspidoras brunneus**		Endemic – Araguaia
*Aspidoras eurycephalus**		Endemic – upper Tocantins
*Aspidoras gabrieli**		Endemic – lower Tocantins
*Aspidoras marianae**		Endemic – Iriri
*Aspidoras mephisto**		Endemic – upper Tocantins

Taxon	Species	Occurrence
*Aspidoras microgalaeus**		Endemic – upper Xingu
*Aspidoras pauciradiatus**		Endemic – Negro
*Aspidoras poecilus**		Upper Tocantins, Araguaia, upper Xingu
*Aspidoras velites**		Endemic – Araguaia
Callichthys callichthys		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Coari-Urucu, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Paru, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Callichthys serralabium		Negro, upper Orinoco
*Corydoras acrensis**		Endemic – Juruá
*Corydoras acutus**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Amazonas main channel
*Corydoras adolfoi**		Endemic – Negro
*Corydoras aeneus**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Maroni-Approuague, Coppename-Suriname-Saramacca, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Corydoras agassizii**		Putumayo, Amazonas main channel
*Corydoras albolineatus**		Endemic – Guaporé
*Corydoras amandajanea**		Endemic – Negro
*Corydoras ambiacus**		Napo-Ambyiacu, Amazonas main channel
*Corydoras amphibelus**		Endemic – Napo-Ambyiacu
*Corydoras apiaka**		Restricted to Tapajós basin (Teles Pires, Juruena)
*Corydoras araguaiaensis**		Endemic – Araguaia
*Corydoras arcuatus**		Putumayo, Japurá, Negro, Amazonas main channel
*Corydoras armatus**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Marañon-Nanay
*Corydoras atropersonatus**		Endemic – Marañon
Corydoras aurofrenatus		Mamoré, Paraná-Paraguay
Corydoras baderi		Curuá-Paru do Oeste, Maroni-Approuague, Corentyne-Demerara
*Corydoras benattii**		Upper Xingu, lower Xingu, Teles Pires
*Corydoras bifasciatus**		Endemic – Teles Pires
*Corydoras bilineatus**		Endemic – Mamoré
Corydoras blochi		Branco, Amazonas main channel, Essequibo, lower Orinoco, Apure
Corydoras bondi		Branco, Corentyne-Demerara, Essequibo, upper Orinoco
*Corydoras brittoi**		Endemic – Madeira Shield Tributaries
Corydoras britskii		Mamoré, Guaporé, Paraná-Paraguay
*Corydoras burgessi**		Endemic – Negro
*Corydoras caudimaculatus**		Restricted to Madeira basin (Guaporé, middle-lower Madeira)
*Corydoras cervinus**		Restricted to Madeira basin (Guaporé, middle-lower Madeira)

Taxon	Species	Occurrence
*Corydoras cochui**		Endemic – Araguaia
*Corydoras copei**		Endemic – Marañon
*Corydoras coriatae**		Endemic – Ucayali
*Corydoras crimmeni**		Endemic – Branco
*Corydoras cruziensis**		Restricted to Madeira basin (Mamoré, Guaporé)
*Corydoras crypticus**		Endemic – Negro
*Corydoras davidsandsi**		Endemic – Negro
*Corydoras desana**		Endemic – Negro
*Corydoras duplicareus**		Endemic – Negro
*Corydoras elegans**		Mamoré, Putumayo, Japurá, Amazonas main channel
*Corydoras eques**		Endemic – Amazonas main channel
*Corydoras evelynae**		Endemic – Amazonas main channel
*Corydoras eversi**		Endemic – Araguaia
*Corydoras fowleri**		Endemic – Amazonas main channel
*Corydoras geryi**		Restricted to Madeira basin (Mamoré, Guaporé)
*Corydoras gomezi**		Endemic – Amazonas main channel
*Corydoras gossei**		Endemic – Mamoré
*Corydoras gracilis**		Endemic – Madeira Shield Tributaries
*Corydoras guapore**		Endemic – Guaporé
*Corydoras haraldschultzi**		Endemic – Guaporé
Corydoras hastatus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Amazonas main channel, Paraná-Paraguay
*Corydoras hephaestus**		Juruena, Madeira Shield Tributaries
*Corydoras imitator**		Endemic – Negro
*Corydoras incolicana**		Endemic – Negro
*Corydoras isbrueckeri**		Endemic – Guaporé
Corydoras julii		Lower Tocantins, Parnaíba
*Corydoras kanei**		Restricted to Negro basin (Negro, Branco)
*Corydoras knaacki**		Endemic – Beni-Madre de Dios
*Corydoras lamberti**		Endemic – Marañon
*Corydoras latus**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
*Corydoras leopardus***		
*Corydoras leucomelas**		Marañon-Nanay, Putumayo, Japurá, Amazonas main channel
*Corydoras loretoensis**		Endemic – Marañon
*Corydoras maculifer**		Endemic – Araguaia
*Corydoras mamore**		Endemic – Mamoré
Corydoras melanistius		Branco, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
Corydoras melini		Japurá, Negro, upper Orinoco

Taxon	Species	Occurrence
*Corydoras multiradiatus**		Endemic – Napo-Ambyiacu
*Corydoras napoensis**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Napo-Ambyiacu, Amazonas main channel
*Corydoras narcissus**		Endemic – Purus
*Corydoras negro**		Endemic – Branco
*Corydoras nijsseni**		Endemic – Negro
*Corydoras noelkempffi**		Endemic – Guaporé
*Corydoras ornatus**		Endemic – Tapajós
*Corydoras orphnopterus**		Endemic – Marañon
Corydoras osteocarus		Branco, lower Orinoco, upper Orinoco, Apure
*Corydoras ourastigma**		Endemic – Purus
*Corydoras panda**		Endemic – Ucayali
*Corydoras pantanalensis**		Restricted to Madeira basin (Mamoré, Guaporé)
*Corydoras paragua**		Endemic – Guaporé
*Corydoras parallelus**		Endemic – Negro
*Corydoras pastazensis**		Marañon-Nanay, Putumayo, Amazonas main channel
*Corydoras paucerna**		Endemic – Guaporé
*Corydoras pavanelliae**		Endemic – Madeira Shield Tributaries
*Corydoras pinheiroi***		
Corydoras polystictus		Guaporé, Paraná-Paraguay
Corydoras potaroensis		Negro, Branco, Essequibo
*Corydoras pulcher**		Endemic – Purus
*Corydoras pygmaeus**		Middle-lower Madeira, Amazonas main channel
*Corydoras rabauti**		Javari, Putumayo, Negro, Amazonas main channel
*Corydoras reticulatus**		Japurá, Amazonas main channel
*Corydoras reynoldsi**		Endemic – Japurá
*Corydoras robineae**		Endemic – Negro
*Corydoras robustus**		Endemic – Purus
*Corydoras sarareensis**		Endemic – Guaporé
*Corydoras schwartzi**		Endemic – Purus
*Corydoras semiaquilus**		Endemic – Amazonas main channel
*Corydoras serratus**		Endemic – Negro
*Corydoras seussi**		Endemic – Mamoré
*Corydoras similis**		Endemic – Middle-lower Madeira
Corydoras sipaliwini		Branco, Maroni-Approuague, Corentyne-Demerara, Essequibo
*Corydoras sodalis**		Endemic – Amazonas main channel
*Corydoras spectabilis**		Endemic – Guaporé
*Corydoras splendens**		Araguaia, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Putumayo, Japurá, Amazonas main channel

Taxon	Species	Occurrence
*Corydoras stenocephalus**		Mamoré, Beni-Madre de Dios, Purus, Juruá, Ucayali
*Corydoras sterbai**		Endemic – Guaporé
*Corydoras sychri**		Endemic – Marañon
*Corydoras trilineatus**		Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Putumayo, Japurá, Amazonas main channel
*Corydoras tukano**		Endemic – Negro
*Corydoras urucu**		Endemic – Coari-Urucu
*Corydoras virginiae**		Endemic – Ucayali
*Corydoras weitzmani**		Endemic – Ucayali
*Corydoras xinguensis**		Restricted to Xingu basin (upper Xingu, lower Xingu)
*Corydoras zawadzkii**		Endemic – Madeira Shield Tributaries
*Corydoras zygatus**		Juruá, Marañon-Nanay, Amazonas main channel
Hoplosternum littorale		Araguaia, Juruena, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Putumayo, Japurá, Negro, Amazonas main channel, Amazonas Estuary, Parnaíba, Capim, Araguari-Macari-Amapá, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Atl. Coastal Drainages of Col. Ven., Paraná-Paraguay
*Dianema longibarbis**		Lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Tefé, Ucayali, Marañon-Nanay, Putumayo, Japurá, Jari, Amazonas main channel
*Dianema urostriatum**		Middle-lower Madeira, Amazonas main channel
*Lepthoplosternum altamazonicum**		Purus, Juruá, Ucayali
*Lepthoplosternum beni**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios, middle-lower Madeira)
*Lepthoplosternum stellatum**		Endemic – Tefé
*Lepthoplosternum ucamara**		Ucayali, Japurá, Amazonas main channel
Megalechis picta		Araguaia, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Ucayali, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Coppename-Suriname-Saramacca, Essequibo, lower Orinoco, upper Orinoco
Megalechis thoracata		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Juruá, Ucayali, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Itapicuru-Mearim, Capim, Araguari-Macari-Amapá, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Cetopsidae	26	
*Cetopsidium ferreirai**		Urubu-Uatumã, Trombetas
Cetopsidium orientale		Upper Tocantins, Araguaia, middle-lower Madeira, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
Cetopsidium pemon		Negro, Branco, lower Orinoco, upper Orinoco
Cetopsidium roae		Branco, Essequibo
*Cetopsidium soniae**		Endemic – Branco
*Cetopsis arcana**		Restricted to Tocantins basin (upper Tocantins, Araguaia, lower Tocantins)

Taxon	Species	Occurrence
*Cetopsis caiapo**		Endemic – upper Tocantins
*Cetopsis candiru**		Upper Tocantins, Araguaia, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Putumayo, Japurá, Negro, Amazonas main channel, Amazonas Estuary
Cetopsis coecutiens		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Jari, Amazonas main channel, Amazonas Estuary, lower Orinoco, upper Orinoco, Apure
*Cetopsis montana**		Marañon-Nanay, Napo-Ambyiacu
*Cetopsis oliveirai**		Beni-Madre de Dios, middle-lower Madeira, Napo-Ambyiacu, Putumayo, Amazonas main channel
*Cetopsis parma**		Middle-lower Madeira, Ucayali, Marañon-Nanay, Negro
*Cetopsis pearsoni**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
Cetopsis plumbea		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Marañon-Nanay, Napo-Ambyiacu, upper Orinoco
*Cetopsis sandrae**		Restricted to Tapajós basin (Teles Pires, Juruena)
*Cetopsis sarcodes**		Endemic – upper Tocantins
Cetopsis starnesi		Mamoré, Guaporé, Paraná-Paraguay
*Denticetopsis epa**		Endemic – lower Tocantins
Denticetopsis iwokrama		Branco, Essequibo
Denticeptopsis macilenta		Negro, Branco, Essequibo, upper Orinoco, Apure
*Denticetopsis praecox**		Negro, Amazonas main channel
*Denticetopsis royeroi**		Endemic – Negro
*Denticetopsis sauli**		Endemic – Negro
*Denticetopsis seducta**		Middle-lower Madeira, Napo-Ambyiacu, Putumayo, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel
*Helogenes gouldingi**		Endemic – Middle-lower Madeira
Helogenes marmoratus		Upper Xingu, Iriri, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Capim, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
Doradidae	73	
Acanthodoras cataphractus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Japurá, Negro, Branco, Urubu-Uatumã, Jari, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
*Acanthodoras depressus**		Endemic – Negro
Acanthodoras spinosissimus		Mamoré, Guaporé, middle-lower Madeira, Coari-Urucu, Juruá, Branco, Trombetas, Amazonas main channel, Essequibo, upper Orinoco
Agamyxis albomaculatus		Putumayo, Japurá, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Agamyxis pectinifrons**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Putumayo, Japurá, Amazonas main channel

Taxon	Species	Occurrence
*Amblydoras affinis**		Araguaia, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Tefé, Ucayali, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Capim, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Amblydoras monitor***		Amazonas main channel
*Amblydoras nauticus***		
*Anadoras grypus**		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Napo-Ambyiacu, Putumayo, Amazonas main channel
*Anadoras regani***		Japurá, Negro, Amazonas main channel
Anadoras weddellii		Araguaia, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Araguari-Macari-Amapá, Oiapoque, Paraná-Paraguay
Anduzedoras oxyrhynchus		Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco
*Astrodoras asterifrons**		Lower Tocantins, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Jutaí, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel
*Centrodoras brachiatus**		Lower Xingu, middle-lower Madeira, Amazonas main channel, Amazonas Estuary
*Centrodoras hasemani**		Endemic – Negro
Doras carinatus		Lower Xingu, Trombetas, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
*Doras higuchii**		Upper Xingu, Iriri, lower Xingu, Trombetas, Jari
*Doras phlyzakion**		Purus, Juruá, Japurá, Negro, Branco, Amazonas main channel
*Doras zuanoni**		Endemic – Araguaia
*Hassar gabiru**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
Hassar orestis		Araguaia, lower Xingu, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Negro, Branco, Trombetas, Jari, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
*Hassar shewellkeimi**		Restricted to Tapajós basin (Teles Pires, Juruena)
*Hassar wilderi**		Upper Tocantins, Araguaia, lower Tocantins, Branco
*Hemidoras morei**		Mamoré, Guaporé, Purus, Tefé, Negro, Amazonas main channel
*Hemidoras morrisi***		Middle-lower Madeira, Putumayo, Amazonas main channel
*Hemidoras stenopeltis**		Mamoré, Guaporé, middle-lower Madeira, Purus, Japurá, Negro, Branco, Amazonas main channel
*Hypodoras forficulatus**		Marañon-Nanay, Putumayo, Amazonas main channel
*Leptodoras acipenserinus**		Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Marañon-Nanay, Napo-Ambyiacu
*Leptodoras cataniai**		Upper Tocantins, lower Tocantins, middle-lower Madeira, Madeira Shield Tributaries, Juruá, Ucayali, Napo-Ambyiacu, Negro, Branco, Amazonas main channel
Leptodoras copei		Negro, Amazonas main channel, lower Orinoco, upper Orinoco
Leptodoras hasemani		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Tapajós, Jamanxim, Negro, Branco, Essequibo, lower Orinoco, upper Orinoco
*Leptodoras juruensis**		Middle-lower Madeira, Putumayo, Amazonas main channel

Taxon	Species	Occurrence
Leptodoras linnelli		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Negro, Branco, Urubu-Uatumã, Araguari-Macari-Amapá, Corentyne-Demerara, Essequibo, upper Orinoco
*Leptodoras marki**		Endemic – upper Xingu
*Leptodoras myersi**		Mamoré, middle-lower Madeira, Amazonas main channel
*Leptodoras oyakawai**		Upper Xingu, lower Xingu, Teles Pires, Jamanxim
Leptodoras praelongus		Upper Tocantins, lower Xingu, Teles Pires, Mamoré, middle-lower Madeira, Negro, Branco, Jari, Amazonas main channel, upper Orinoco
Lithodoras dorsalis		Purus, Amazonas main channel, Amazonas Estuary, Capim
Megalodoras uranoscopus		Upper Tocantins, Araguaia, lower Tocantins, Iriri, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Japurá, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, Apure
Nemadoras cristinae		Beni-Madre de Dios, middle-lower Madeira, Purus, Marañon-Nanay, Amazonas main channel, upper Orinoco
*Nemadoras elongatus**		Middle-lower Madeira, Purus, Tefé, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Amazonas main channel
*Nemadoras hemipeltis**		Middle-lower Madeira, Ucayali, Urubu-Uatumã, Amazonas main channel
*Nemadoras humeralis**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Putumayo, Japurá, Negro, Amazonas main channel
*Opsodoras boulengeri**		Mamoré, Guaporé, middle-lower Madeira, Trombetas, Amazonas main channel
*Opsodoras stuebelii**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Marañon-Nanay, Japurá, Negro, Amazonas main channel
*Ossancora asterophysa**		Tapajós, Mamoré, Guaporé, middle-lower Madeira, Ucayali, Marañon-Nanay, Negro, Trombetas, Amazonas main channel, Amazonas Estuary
*Ossancora fimbriata**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Tefé, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel
Ossancora punctata		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Marañon-Nanay, Amazonas main channel, Paraná-Paraguay
Oxydoras niger		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Tefé, Ucayali, Putumayo, Japurá, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Physopyxis ananas		Anapu, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Jutaí, Marañon-Nanay, Negro, Branco, Trombetas, Essequibo, upper Orinoco
*Physopyxis cristata**		Restricted to Negro basin (Negro, Branco)
*Physopyxis lyra**		Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Putumayo, Negro, Urubu-Uatumã, Amazonas main channel
Platydoras armatulus		Araguaia, lower Tocantins, lower Xingu, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Japurá, Urubu-Uatumã, Amazonas main channel, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Platydoras birindelli**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
Platydoras hancockii		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Negro, Branco, Corentyne-Demerara, Essequibo, upper Orinoco
Pterodoras granulosus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Tefé, Juruá, Ucayali, Marañon-Nanay, Putumayo, Japurá, Negro, Amazonas main channel, Paraná-Paraguay

Taxon	Species	Occurrence
Pterodoras rivasi		Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Rhinodoras armbrusteri		Branco, Essequibo
*Rhinodoras boehlkei**		Upper Tocantins, Araguaia, lower Tocantins, Teles Pires, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Marañon-Nanay, Negro, Amazonas main channel
Rhinodoras dorbignyi		Upper Tocantins, lower Tocantins, Mamoré, Paraná-Paraguay
Rhynchodoras woodsi		Mamoré, Ucayali, Marañon-Nanay, Negro, Branco, Amazonas main channel, Essequibo
*Rhynchodoras xingui**		Lower Tocantins, upper Xingu, lower Xingu
Scorpiodoras heckelii		Tapajós, middle-lower Madeira, Negro, Branco, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco
*Scorpiodoras liophysus**		Endemic – Middle-lower Madeira
Tenellus leporhinus		Upper Tocantins, Araguaia, lower Tocantins, Teles Pires, Jamanxim, middle-lower Madeira, Branco, Trombetas, Jari, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Tenellus ternetzi		Araguaia, lower Tocantins, lower Xingu, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Tefé, Juruá, Ucayali, Marañon-Nanay, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, lower Orinoco, upper Orinoco
Tenellus trimaculatus		Upper Tocantins, lower Tocantins, Teles Pires, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
Trachydoras brevis		Lower Xingu, Tapajós, Mamoré, middle-lower Madeira, Purus, Negro, Branco, Trombetas, Jari, Essequibo
Trachydoras gepharti		Upper Xingu, Jamanxim, Jutaí, Negro, Branco, Amazonas main channel, lower Orinoco, upper Orinoco
Trachydoras microstomus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Negro, Branco, Amazonas main channel, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
Trachydoras nattereri		Mamoré, Guaporé, middle-lower Madeira, Tefé, Ucayali, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Essequibo
Trachydoras paraguayensis		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Paraná-Paraguay
*Trachydoras steindachneri**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Trombetas, Amazonas main channel
Heptapteridae	87	
Brachyglanis frenata		Negro, Urubu-Uatumã, Trombetas, Essequibo, upper Orinoco
Brachyglanis melas		Lower Tocantins, Tapajós, Negro, Branco, Essequibo
*Brachyglanis microphthalmus**		Endemic – Trombetas
*Brachyglanis nocturna**		Endemic – Negro
Brachyrhamdia heteropleura		Branco, Corentyne-Demerara, Essequibo
*Brachyrhamdia marthae**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Juruá, Ucayali
*Brachyrhamdia meesi**		Endemic – Amazonas main channel
*Brachyrhamdia rambarrani**		Endemic – Negro
*Brachyrhamdia thayeria**		Endemic – Japurá
*Cetopsorhamdia filamentosa**		Endemic – Ucayali
Cetopsorhamdia iheringi		Araguaia, Paraná-Paraguay, São Francisco
*Cetopsorhamdia insidiosa**		Lower Tocantins, Iriri, lower Xingu, Negro, Branco

Taxon	Species	Occurrence
Cetopsorhamdia molinae		Upper Tocantins, Beni-Madre de Dios, Apure, Cauca-Magdalena-Sinu
Cetopsorhamdia orinoco		Napo-Ambyiacu, lower Orinoco, upper Orinoco, Cauca-Magdalena-Sinu
*Cetopsorhamdia phantasia**		Beni-Madre de Dios, middle-lower Madeira, Ucayali, Napo-Ambyiacu, Putumayo
Chasmocranus longior		Upper Tocantins, upper Xingu, lower Xingu, Beni-Madre de Dios, Negro, Branco, Urubu-Uatumã, Trombetas, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
*Chasmocranus peruanus**		Endemic – Marañon
*Chasmocranus quadrizonatus**		Endemic – Marañon
*Gladioglanis anacanthus**		Endemic – Madeira Shield Tributaries
Gladioglanis conquistador		Middle-lower Madeira, Madeira Shield Tributaries, Purus, Napo-Ambyiacu, Putumayo, Negro, Branco, Amazonas main channel, Capim
Gladioglanis machadoi		Negro, lower Orinoco, upper Orinoco
Goeldiella eques		Madeira Shield Tributaries, Juruá, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
*Horiomyzon retropinnatus**		Middle-lower Madeira, Napo-Ambyiacu
Imparfinis borodini		Upper Tocantins, Paraná-Paraguay
*Imparfinis cochabambae**		Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Ucayali
Imparfinis guttatus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Paraná-Paraguay
Imparfinis hasemani		Negro, Branco, Jari, Amazonas main channel, Maroni-Approuague, Essequibo
*Imparfinis longicaudus**		Endemic – Marañon
Imparfinis mirini		Araguaia, Paraná-Paraguay
Imparfinis nemacheir		Amazonas main channel, Apure, Maracaibo, Cauca-Magdalena-Sinu, Atrato
Imparfinis pristos		Upper Xingu, Negro, Amazonas main channel, upper Orinoco
Imparfinis pseudonemacheir		Ucayali, lower Orinoco, upper Orinoco
Imparfinis stictonotus		Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Paraná-Paraguay
Leptorhamdia essequibensis		Lower Tocantins, Negro, Branco, Urubu-Uatumã, Essequibo
Leptorhamdia marmorata		Negro, upper Orinoco, Apure
*Leptorhamdia schultzi**		Upper Xingu, lower Xingu, Teles Pires
Mastiglanis asopos		Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Tapajós, Jamanxim, middle-lower Madeira, Madeira Shield Tributaries, Purus, Negro, Branco, Urubu-Uatumã, Amazonas main channel, Capim, Essequibo, lower Orinoco, upper Orinoco, Apure
*Myoglanis koepckei**		Middle-lower Madeira, Ucayali, Marañon-Nanay, Negro, Amazonas main channel
*Nannoglanis fasciatus**		Napo-Ambyiacu, Japurá
*Nemuroglanis furcatus**		Middle-lower Madeira, Madeira Shield Tributaries
*Nemuroglanis lanceolatus**		Ucayali, Napo-Ambyiacu, Amazonas main channel
Nemuroglanis pauciradiatus		Negro, Branco, Urubu-Uatumã, Trombetas, upper Orinoco
*Pariolius armillatus**		Endemic – Napo-Ambyiacu
*Phenacorhamdia boliviana**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Marañon-Nanay
*Phenacorhamdia nigrolineata**		Beni-Madre de Dios, Purus, Ucayali

Taxon	Species	Occurrence
*Phenacorhamdia somnians**		Endemic – Araguaia
Phreatobius cisternarum		Amazonas Estuary, Araguari-Macari-Amapá
*Phreatobius dracunculus**		Restricted to Madeira basin (Guaporé, middle-lower Madeira)
*Phreatobius sanguijuela**		Endemic – Guaporé
Pimelodella altipinnis		Upper Xingu, Amazonas main channel, Essequibo
*Pimelodella bockmanni**		Endemic – Madeira Shield Tributaries
*Pimelodella boliviana**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
*Pimelodella breviceps**		Endemic – Negro
*Pimelodella buckleyi**		Mamoré, Beni-Madre de Dios, Marañon-Nanay, Napo-Ambyiacu
*Pimelodella chaparae**		Endemic – Mamoré
*Pimelodella conquetaensis**		Endemic – Japurá
Pimelodella cristata		Lower Tocantins, Iriri, lower Xingu, Putumayo, Japurá, Branco, Trombetas, Jari, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Pimelodella cyanostigma**		Endemic – Napo-Ambyiacu
Pimelodella geryi		Japurá, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara
Pimelodella gracilis		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Putumayo, lower Orinoco, upper Orinoco, Paraná-Paraguay
Pimelodella griffini		Mamoré, Beni-Madre de Dios, Paraná-Paraguay
*Pimelodella hartwelli**		Endemic – Ucayali
*Pimelodella hasemani**		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Putumayo
*Pimelodella howesi**		Restricted to Madeira basin (Mamoré, Guaporé, middle-lower Madeira)
*Pimelodella humeralis**		Endemic – Jari
Pimelodella leptosoma		Branco, Essequibo
Pimelodella megalops		Branco, Maroni-Approuague, Essequibo, lower Orinoco
*Pimelodella montana**		Endemic – Marañon
Pimelodella mucosa		Mamoré, Guaporé, Beni-Madre de Dios, Paraná-Paraguay
*Pimelodella nigrofasciata**		Endemic – Beni-Madre de Dios
*Pimelodella ophthalmica**		Endemic – Marañon
*Pimelodella peruana**		Endemic – Ucayali
*Pimelodella peruensis***		
*Pimelodella roccae**		Mamoré, Beni-Madre de Dios, Ucayali
*Pimelodella serrata**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
*Pimelodella spelaea**		Endemic – upper Tocantins
*Pimelodella steindachneri**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Amazonas main channel
*Rhamdella montana**		Endemic – Ucayali
*Rhamdella rusbyi**		Endemic – Beni-Madre de Dios

Taxon	Species	Occurrence
Rhamdia foina		Lower Tocantins, Negro, Branco, Trombetas, Maroni-Approuague, Essequibo
Rhamdia humilis		Japurá, Atl. Coastal Drainages of Col. Ven.
*Rhamdia itacaiunas**		Lower Tocantins, upper Xingu
Rhamdia laukidi		Juruena, middle-lower Madeira, Negro, Branco, Urubu-Uatumã, Amazonas main channel, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
Rhamdia muelleri		Upper Tocantins, lower Tocantins, middle-lower Madeira, Madeira Shield Tributaries, Napo-Ambyiacu, Negro, Trombetas, Capim, Essequibo, lower Orinoco, upper Orinoco
*Rhamdia parvus**		Endemic – Marañon
*Rhamdia poeyi**		Upper Tocantins, Mamoré, Napo-Ambyiacu
Rhamdia quelen		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, Capim, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Maracaibo, Atl. Coastal Drainages of Col. Ven., Cauca-Magdalena-Sinu, Atrato, Paraná-Paraguay
Pimelodidae	60	
*Aguarunichthys inpai**		Middle-lower Madeira, Amazonas main channel
*Aguarunichthys tocantinsensis**		Restricted to Tocantins basin (upper Tocantins, lower Tocantins)
*Aguarunichthys torosus**		Beni-Madre de Dios, middle-lower Madeira, Marañon-Nanay
Brachyplatystoma capapretum		Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Negro, Urubu-Uatumã, Amazonas main channel, Amazonas Estuary, Capim
Brachyplatystoma filamentosum		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Parnaíba, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Brachyplatystoma juruense		Middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Japurá, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Brachyplatystoma platynemum		Lower Tocantins, upper Xingu, lower Xingu, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Japurá, Branco, Amazonas main channel, Amazonas Estuary, lower Orinoco, upper Orinoco, Apure
Brachyplatystoma rousseauxii		Lower Tocantins, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Japurá, Branco, Amazonas main channel, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco, upper Orinoco, Apure
*Brachyplatystoma tigrinum**		Lower Xingu, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Japurá, Amazonas main channel
Brachyplatystoma vaillantii		Lower Tocantins, lower Xingu, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Japurá, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Calophysus macropterus		Upper Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Putumayo, Japurá, Branco, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Cheirocerus eques**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Napo-Ambyiacu, Putumayo, Amazonas main channel
*Cheirocerus goeldii**		Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Branco, Amazonas main channel

Taxon	Species	Occurrence
Duopalatinus peruanus		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Trombetas, Amazonas main channel, upper Orinoco, Apure
Exallodontus aguanai		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Amazonas main channel, Amazonas Estuary, lower Orinoco, upper Orinoco, Apure
Hemisorubim platyrhynchos		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Putumayo, Japurá, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Parnaíba, Itapicuru-Mearim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Hypophthalmus edentatus**		Lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Hypophthalmus fimbriatus		Lower Xingu, Mamoré, middle-lower Madeira, Japurá, Negro, Trombetas, Amazonas main channel, lower Orinoco
*Hypophthalmus marginatus**		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Purus, Ucayali, Marañon-Nanay, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco, upper Orinoco, Apure
Hypophthalmus oremaculatus		Middle-lower Madeira, Purus, Juruá, Ucayali, Negro, Branco, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Leiarius marmoratus		Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Japurá, Negro, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Leiarius pictus		Teles Pires, Tapajós, Beni-Madre de Dios, middle-lower Madeira, Purus, Putumayo, Japurá, Urubu-Uatumã, Trombetas, Amazonas main channel, upper Orinoco
Megalonema platanum		Mamoré, Guaporé, middle-lower Madeira, Paraná-Paraguay
Megalonema platycephalum		Araguaia, lower Tocantins, lower Xingu, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Megalonema E. amaxanthum		Upper Tocantins, lower Tocantins, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Jutaí, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Japurá, Negro, Branco, Amazonas main channel, Essequibo
Phractocephalus hemioliopterus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Coari-Urucu, Tefé, Juruá, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Pimelodina flavipinnis		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Putumayo, Japurá, Negro, Trombetas, Amazonas main channel, Capim, lower Orinoco, upper Orinoco
Pimelodus albofasciatus		Araguaia, lower Xingu, Teles Pires, middle-lower Madeira, Juruá, Negro, Branco, Trombetas, Jari, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
Pimelodus altissimus		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Juruá, Ucayali, Amazonas main channel, Amazonas Estuary, lower Orinoco, Apure

Taxon	Species	Occurrence
Pimelodus blochii		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Ucayali, Putumayo, Japurá, Branco, Trombetas, Amazonas main channel, Parnaíba, Itapicuru-Mearim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Cauca-Magdalena-Sinu
*Pimelodus halisodous**		Endemic – upper Tocantins
*Pimelodus jivaro**		Endemic – Marañon
*Pimelodus joannis**		Endemic – upper Tocantins
*Pimelodus luciae**		Endemic – lower Tocantins
Pimelodus maculatus		Beni-Madre de Dios, Purus, Juruá, Ucayali, Putumayo, Japurá, Parnaíba, Paraná-Paraguay
Pimelodus microstoma		Branco, Paraná-Paraguay
Pimelodus ornatus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Putumayo, Negro, Branco, Trombetas, Amazonas main channel, Parnaíba, Itapicuru-Mearim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Pimelodus pictus		Beni-Madre de Dios, middle-lower Madeira, Javari, Ucayali, Napo-Ambyiacu, Putumayo, Japurá, Amazonas main channel, upper Orinoco, Apure
*Pimelodus quadratus**		Endemic – upper Tocantins
*Pimelodus speciosus**		Endemic – upper Tocantins
*Pimelodus stewarti**		Endemic – upper Tocantins
*Pimelodus tetramerus**		Upper Tocantins, Araguaia, lower Tocantins, Teles Pires, Tapajós
Pinirampus pirinampu		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Juruá, Ucayali, Putumayo, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Platynematichthys notatus		Lower Tocantins, lower Xingu, Teles Pires, Tapajós, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, lower Orinoco, upper Orinoco, Apure
Platysilurus mucosus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Tefé, Juruá, Japurá, Branco, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Platysilurus olallae**		Endemic – Marañon
*Platystomatichthys sturio**		Lower Tocantins, upper Xingu, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary
*Propimelodus araguayae**		Endemic – Araguaia
Propimelodus caesius		Lower Tocantins, Mamoré, middle-lower Madeira, Purus, Negro, Amazonas main channel, Amazonas Estuary, Capim
Propimelodus eigenmanni		Lower Tocantins, Negro, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Oiapoque, Maroni-Approuague
Pseudoplatystoma punctifer		Araguaia, Iriri, lower Xingu, Teles Pires, Juruena, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Jutaí, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Negro, Parnaíba, Itapicuru-Mearim
Pseudoplatystoma reticulatum		Negro, Paraná-Paraguay

Taxon	Species	Occurrence
*Pseudoplatystoma tigrinum**		Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Marañon-Nanay, Branco, Amazonas main channel
Sorubim elongatus		Lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
Sorubim lima		Upper Tocantins, Araguaia, lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Tefé, Juruá, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Negro, Branco, Trombetas, Amazonas main channel, Parnaíba, Itapicuru-Mearim, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Sorubim maniradii**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Napo-Ambyiacu, Amazonas main channel
*Sorubim trigonocephalus**		Upper Xingu, lower Xingu, Teles Pires, Juruena
Sorubimichthys planiceps		Araguaia, lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Japurá, Negro, Branco, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Zungaro zungaro		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Ucayali, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
*Zungaropsis multimaculatus***		
Pseudopimelodidae	16	
Batrochoglanis raninus		Lower Tocantins, upper Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Putumayo, Japurá, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Essequibo, lower Orinoco, upper Orinoco
Batrochoglanis villosus		Lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Tefé, Juruá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Itapicuru-Mearim, Capim, Araguari-Macari-Amapá, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Microglanis lundbergi**		Endemic – Amazonas main channel
*Microglanis maculatus**		Endemic – upper Tocantins
*Microglanis oliveirai**		Endemic – Araguaia
*Microglanis pellopterygius**		Endemic – Napo-Ambyiacu
Microglanis poecilus		Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Branco, Amazonas main channel, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Microglanis robustus**		Endemic – lower Tocantins
Microglanis secundus		Branco, Trombetas, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
*Microglanis xerente**		Endemic – upper Tocantins
*Microglanis xylographicus**		Endemic – Araguaia
*Microglanis zonatus**		Endemic – Marañon

Taxon	Species	Occurrence
Pseudopimelodus bufonius		Upper Tocantins, Araguaia, upper Xingu, Iriri, Teles Pires, Jamanxim, middle-lower Madeira, Negro, Branco, Urubu-Uatumã, Trombetas, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
*Rhyacoglanis epiblepsis**		Endemic – Guaporé
*Rhyacoglanis pulcher**		Endemic – Marañon
*Rhyacoglanis seminiger**		Endemic – Juruena
Loricariidae	361	
*Acanthicus adonis**		Endemic – lower Tocantins
Acanthicus hystrix		Upper Tocantins, Araguaia, lower Tocantins, lower Xingu, middle-lower Madeira, Purus, Marañon-Nanay, Japurá, Branco, Amazonas main channel, upper Orinoco
Acestridium dichromum		Negro, upper Orinoco
*Acestridium discus**		Negro, Branco, Trombetas, Amazonas main channel
*Acestridium gymnogaster**		Endemic – Middle-lower Madeira
Acestridium martini		Negro, upper Orinoco
*Acestridium scutatum**		Endemic – Middle-lower Madeira
*Acestridium triplax**		Endemic – Tapajós
*Ancistomus feldbergae**		Iriri, lower Xingu, Teles Pires
*Ancistomus micrommatos**		Endemic – upper Tocantins
*Ancistomus snethlageae**		Restricted to Tapajós basin (Teles Pires, Juruena, Tapajós)
*Ancistomus spilomma**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu
*Ancistomus spinosissimus**		Endemic – upper Tocantins
*Ancistrus aguaboensis**		Endemic – upper Tocantins
*Ancistrus alga**		Marañon-Nanay, Napo-Ambyiacu
*Ancistrus bolivianus**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
Ancistrus brevifilis		Amazonas main channel, upper Orinoco, Apure, Atl. Coastal Drainages of Col. Ven.
*Ancistrus bufonius**		Mamoré, Beni-Madre de Dios, Ucayali
*Ancistrus cryptophthalmus**		Endemic – upper Tocantins
Ancistrus dolichopterus		Beni-Madre de Dios, Madeira Shield Tributaries, Tefé, Branco, lower Orinoco
*Ancistrus dubius***		
*Ancistrus heterorhynchus**		Endemic – Beni-Madre de Dios
Ancistrus hoplogenys		Lower Tocantins, Purus, Branco, Essequibo, upper Orinoco
*Ancistrus jataiensis**		Endemic – upper Tocantins
*Ancistrus jelskii**		Endemic – Ucayali
*Ancistrus karajas**		Endemic – lower Tocantins
*Ancistrus krenakarore**		Endemic – Tapajós
Ancistrus latifrons		Marañon-Nanay, upper Orinoco
*Ancistrus lineolatus**		Putumayo, Japurá
*Ancistrus maculatus**		Amazonas main channel
*Ancistrus malacops**		Marañon-Nanay, Napo-Ambyiacu

Taxon Species	Occurrence
*Ancistrus maximus**	Endemic – Branco
*Ancistrus megalostomus**	Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios)
*Ancistrus minutus**	Endemic – upper Tocantins
*Ancistrus montanus**	Restricted to Madeira basin (Guaporé, Beni-Madre de Dios)
*Ancistrus nudiceps**	Endemic – Branco
*Ancistrus occidentalis**	Marañon-Nanay, Napo-Ambyiacu
*Ancistrus occloi**	Endemic – Ucayali
*Ancistrus parecis**	Endemic – Juruena
*Ancistrus ranunculus**	Araguaia, lower Tocantins, upper Xingu, lower Xingu, Tapajós
*Ancistrus reisi**	Endemic – upper Tocantins
*Ancistrus shuar**	Endemic – Marañon
*Ancistrus stigmaticus**	Endemic – Araguaia
*Ancistrus tamboensis**	Endemic – Ucayali
*Ancistrus tombador**	Endemic – Juruena
*Ancistrus variolus**	Endemic – Napo-Ambyiacu
*Ancistrus verecundus**	Middle-lower Madeira, Madeira Shield Tributaries
*Andeancistrus eschwartzae**	Endemic – Marañon
*Andeancistrus platycephalus**	Endemic – Marañon
Aphanotorulus emarginatus	Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Essequibo, lower Orinoco, upper Orinoco, Apure
*Aphanotorulus horridus**	Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Japurá, Amazonas main channel
*Aphanotorulus phrixosoma **	Juruá, Ucayali
*Aphanotorulus rubrocauda**	Endemic – Madeira Shield Tributaries
*Aphanotorulus unicolor**	Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Amazonas main channel
*Apistoloricaria condei**	Napo-Ambyiacu, Putumayo
Apistoloricaria laani	Mamoré, middle-lower Madeira, upper Orinoco
*Apistoloricaria ommation**	Mamoré, middle-lower Madeira, Amazonas main channel
*Aposturisoma myriodon**	Endemic – Ucayali
*Araichthys loro**	Endemic – Juruena
*Baryancistrus chrysolomus**	Restricted to Xingu basin (Iriri, lower Xingu)
*Baryancistrus longipinnis**	Lower Tocantins, upper Xingu, Tapajós
*Baryancistrus niveatus**	Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Tapajós, Trombetas
*Baryancistrus xanthellus**	Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
*Chaetostoma anale**	Endemic – Japurá
*Chaetostoma branickii**	Endemic – Marañon

Taxon	Species	Occurrence
*Chaetostoma breve**		Marañon-Nanay, Napo-Ambyiacu
*Chaetostoma carrioni**		Endemic – Marañon
*Chaetostoma changae**		Endemic – Marañon
*Chaetostoma daidalmatos**		Endemic – Marañon
*Chaetostoma dermorhynchum**		Marañon-Nanay, Napo-Ambyiacu
*Chaetostoma jegui**		Endemic – Branco
*Chaetostoma lineopunctatum**		Beni-Madre de Dios, Ucayali
*Chaetostoma loborhynchos**		Endemic – Ucayali
*Chaetostoma marcapatae**		Endemic – Beni-Madre de Dios
*Chaetostoma marmorescens**		Endemic – Marañon
*Chaetostoma microps**		Marañon-Nanay, Napo-Ambyiacu
*Chaetostoma platyrhynchus**		Endemic – Japurá
*Chaetostoma sericeum**		Endemic – Napo-Ambyiacu
*Chaetostoma spondylus**		Endemic – Marañon
*Chaetostoma stroumpoulos**		Endemic – Marañon
*Chaetostoma taczanowskii**		Ucayali, Marañon-Nanay
*Chaetostoma trimaculineum**		Endemic – Marañon
*Chaetostoma vagum**		Endemic – Japurá
*Corumbataia tocantinensis**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Corumbataia veadeiros**		Endemic – upper Tocantins
*Cteniloricaria napova**		Endemic – Curuá-Paru do Oeste
*Curculionichthys itaim**		Endemic – Tapajós
*Curculionichthys karipuna**		Endemic – Jari
*Curculionichthys luteofrenatus**		Restricted to Tapajós basin (Teles Pires, Juruena)
*Curculionichthys sabaji**		Restricted to Xingu basin (upper Xingu, Iriri)
*Curculionichthys tukana**		Restricted to Tocantins basin (upper Tocantins, lower Tocantins)
*Dekeyseria amazonica**		Araguaia, lower Tocantins, lower Xingu, Tapajós, middle-lower Madeira, Juruá, Japurá, Trombetas, Jari, Amazonas main channel
Dekeyseria picta		Negro, upper Orinoco
Dekeyseria scaphirhynchus		Middle-lower Madeira, Purus, Negro, Branco, upper Orinoco
Exastilithoxus fimbriatus		Branco, lower Orinoco
*Exastilithoxus hoedemani**		Endemic – Negro
Farlowella acus		Branco, Essequibo, upper Orinoco, Apure, Atl. Coastal Drainages of Col. Ven.
*Farlowella altocorpus**		Endemic – Beni-Madre de Dios
Farlowella amazonum		Araguaia, lower Tocantins, lower Xingu, Tapajós, Jamanxim, middle-lower Madeira, Jutaí, Putumayo, Negro, Branco, Trombetas, Jari, Amazonas main channel, Gurupi-Turiaçu, Capim, Essequibo, Paraná-Paraguay
*Farlowella gianetii**		Endemic – upper Xingu
*Farlowella gracilis**		Endemic – Japurá
*Farlowella hasemani**		Endemic – Amazonas main channel

Taxon	Species	Occurrence
*Farlowella henriquei**		Endemic – Araguaia
*Farlowella knerii**		Beni-Madre de Dios, Ucayali, Marañon-Nanay, Napo-Ambyiacu
Farlowella nattereri		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Japurá, Negro, Branco, Amazonas main channel, Amazonas Estuary, Essequibo
Farlowella odontotumulus		Napo-Ambyiacu, upper Orinoco
Farlowella oxyrryncha		Araguaia, Iriri, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Napo-Ambyiacu, Japurá, Negro, Branco, Amazonas main channel, Amazonas Estuary, Gurupi-Turiaçu, Capim, lower Orinoco, upper Orinoco, Apure
Farlowella platorynchus		Coari-Urucu, Marañon-Nanay, Napo-Ambyiacu, Branco, Amazonas main channel, Amazonas Estuary, Capim
Farlowella reticulata		Branco, Oiapoque, Maroni-Approuague, Essequibo
Farlowella rugosa		Branco, Maroni-Approuague, Corentyne-Demerara, Essequibo
*Farlowella schreitmuelleri**		Negro, Amazonas main channel, Amazonas Estuary
*Farlowella smithi**		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Ucayali, Japurá, Branco, Amazonas main channel
*Fonchiiloricaria nanodon**		Endemic – Marañon
*Furcodontichthys novaesi**		Tapajós, Purus, Tefé, Juruá, Ucayali, Negro, Trombetas, Amazonas main channel
Guyanancistrus brevispinis		Curuá-Paru do Oeste, Jari, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara
*Gymnotocinclus anosteos**		Endemic – upper Tocantins
*Gymnotocinclus canoeiro**		Endemic – upper Tocantins
*Harttia depressa**		Endemic – Urubu-Uatumã
*Harttia dissidens**		Restricted to Tapajós basin (Teles Pires, Tapajós, Jamanxim)
*Harttia duriventris**		Endemic – lower Tocantins
*Harttia panara**		Endemic – Iriri
*Harttia punctata**		Restricted to Tocantins basin (upper Tocantins, Araguaia, lower Tocantins)
*Harttia rondoni**		Restricted to Xingu basin (upper Xingu, Iriri)
*Harttia trombetensis**		Endemic – Trombetas
*Harttia tuna**		Endemic – Curuá-Paru do Oeste
*Harttia uatumensis**		Endemic – Urubu-Uatumã
*Harttia villasboas**		Endemic – Iriri
*Hemiancistrus cerrado**		Endemic – Araguaia
Hemiancistrus guahiborum		Negro, lower Orinoco, upper Orinoco
Hemiancistrus subviridis		Negro, upper Orinoco
Hemiodontichthys acipenserinus		Araguaia, lower Tocantins, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Itapicuru-Mearim, Essequibo, Paraná-Paraguay
*Hisonotus acuen**		Endemic – upper Xingu
*Hisonotus bockmanni**		Endemic – Teles Pires
*Hisonotus chromodontus**		Restricted to Tapajós basin (Teles Pires, Juruena)

Taxon	Species	Occurrence
*Hisonotus jumaorum**		Endemic – Madeira Shield Tributaries
*Hopliancistrus tricornis**		Upper Xingu, Iriri, lower Xingu, Tapajós, Jamanxim
Hypancistrus inspector		Negro, upper Orinoco
*Hypancistrus margaritatus**		Endemic – Branco
*Hypancistrus phantasma**		Endemic – Negro
*Hypancistrus zebra**		Restricted to Xingu basin (upper Xingu, lower Xingu)
*Hypoptopoma baileyi**		Mamoré, Guaporé, Beni-Madre de Dios, Amazonas main channel
*Hypoptopoma bianale**		Ucayali, Napo-Ambyiacu
*Hypoptopoma brevirostratum**		Endemic – Amazonas main channel
*Hypoptopoma elongatum**		Teles Pires, Tapajós, Trombetas
Hypoptopoma guianense		Branco, Corentyne-Demerara, Essequibo
*Hypoptopoma gulare**		Araguaia, lower Tocantins, upper Xingu, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Amazonas main channel
Hypoptopoma incognitum		Upper Tocantins, Araguaia, lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Amazonas main channel, Amazonas Estuary, Itapicuru-Mearim
Hypoptopoma inexspectatum		Upper Xingu, Paraná-Paraguay
*Hypoptopoma muzuspi**		Restricted to Tocantins basin (Araguaia, lower Tocantins)
*Hypoptopoma psilogaster**		Endemic – Marañon
Hypoptopoma spectabile		Purus, Marañon-Nanay, Napo-Ambyiacu, lower Orinoco, upper Orinoco, Apure
Hypoptopoma steindachneri		Beni-Madre de Dios, middle-lower Madeira, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Hypoptopoma sternoptychum**		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Napo-Ambyiacu, Amazonas main channel
Hypoptopoma thoracatum		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Japurá, Branco, Amazonas main channel, Essequibo
*Hypostomus asperatus**		Endemic – Araguaia
*Hypostomus atropinnis**		Endemic – Araguaia
*Hypostomus bolivianus**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios)
*Hypostomus carinatus**		Beni-Madre de Dios, Juruá, Branco, Urubu-Uatumã, Trombetas
*Hypostomus dardanelos**		Endemic – Madeira Shield Tributaries
*Hypostomus delimai**		Restricted to Tocantins basin (Araguaia, lower Tocantins)
*Hypostomus ericae**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Hypostomus ericius**		Endemic – Marañon
*Hypostomus faveolus**		Upper Tocantins, Araguaia, upper Xingu
*Hypostomus fonchii**		Endemic – Ucayali
*Hypostomus goyazensis**		Endemic – Araguaia
Hypostomus hemicochliodon		Upper Xingu, Juruena, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Negro, Amazonas main channel, upper Orinoco
Hypostomus hemiurus		Branco, Corentyne-Demerara, Essequibo
*Hypostomus hoplonites**		Mamoré, Guaporé, middle-lower Madeira, Purus, Amazonas main channel

Taxon	Species	Occurrence
*Hypostomus kopeyaka**		Endemic – Negro
*Hypostomus kuarup**		Endemic – upper Xingu
*Hypostomus levis**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios)
Hypostomus macushi		Branco, Essequibo
*Hypostomus melanephelis**		Endemic – Tapajós
*Hypostomus niceforoi**		Endemic – Japurá
*Hypostomus oculeus**		Ucayali, Marañon-Nanay, Napo-Ambyiacu, Japurá, Branco, Amazonas main channel
*Hypostomus pantherinus**		Restricted to Madeira basin (Mamoré, Guaporé)
*Hypostomus paucipunctatus**		Endemic – lower Tocantins
Hypostomus pyrineusi		Lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Amazonas main channel, upper Orinoco
*Hypostomus rondoni**		Endemic – Teles Pires
Hypostomus sculpodon		Negro, upper Orinoco
*Hypostomus soniae**		Restricted to Tapajós basin (Teles Pires, Tapajós, Jamanxim)
Hypostomus taphorni		Branco, Corentyne-Demerara, Essequibo
*Hypostomus varimaculosus**		Endemic – Japurá
*Hypostomus weberi**		Endemic – Negro
*Lamontichthys avacanoeiro**		Endemic – upper Tocantins
*Lamontichthys filamentosus**		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Amazonas main channel
*Lamontichthys parakana**		Endemic – lower Tocantins
*Lamontichthys stibaros**		Ucayali, Marañon-Nanay, Napo-Ambyiacu
*Lasiancistrus heteracanthus**		Napo-Ambyiacu, Putumayo, Japurá
Lasiancistrus schomburgkii		Lower Tocantins, lower Xingu, Jamanxim, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Japurá, Branco, Essequibo, upper Orinoco
Leporacanthicus galaxias		Upper Tocantins, Araguaia, lower Tocantins, middle-lower Madeira, lower Orinoco, upper Orinoco
*Leporacanthicus heterodon**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
*Leporacanthicus joselimai**		Restricted to Tapajós basin (Teles Pires, Tapajós)
*Leptotocinclus ctenistus**		Coari-Urucu, Negro, Amazonas main channel
*Leptotocinclus madeirae**		Endemic – Middle-lower Madeira
Limatulichthys griseus		Upper Tocantins, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Jamanxim, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Juruá, Ucayali, Napo-Ambyiacu, Putumayo, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Essequibo, lower Orinoco, upper Orinoco
*Lithoxus bovallii**		Branco, Trombetas
*Lithoxus jariensis**		Endemic – Jari
Lithoxus lithoides		Branco, Urubu-Uatumã, Trombetas, Corentyne-Demerara, Essequibo
*Loraxichthys lexa**		Endemic – Ucayali

Taxon	Species	Occurrence
*Loricaria birindellii**		Restricted to Xingu basin (Iriri, lower Xingu)
Loricaria cataphracta		Lower Tocantins, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Essequibo, lower Orinoco, upper Orinoco, Apure
*Loricaria clavipinna**		Ucayali, Amazonas main channel
*Loricaria lata**		Endemic – upper Tocantins
*Loricaria lundbergi**		Endemic – Negro
*Loricaria pumila**		Lower Tocantins, Amazonas main channel, Amazonas Estuary
Loricaria simillima		Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Branco, Amazonas main channel, upper Orinoco, Atl. Coastal Drainages of Col. Ven., Paraná-Paraguay
*Loricaria spinulifera**		Negro, Amazonas main channel
Loricariichthys acutus		Araguaia, lower Xingu, Tapajós, middle-lower Madeira, Purus, Negro, Branco, Trombetas, Amazonas main channel, Itapicuru-Mearim, Essequibo
*Loricariichthys cashibo***		
*Loricariichthys chanjoo***		
*Loricariichthys hauxwelli**		Ucayali, Amazonas main channel
*Loricariichthys maculatus**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Negro, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Loricariichthys nudirostris**		Lower Tocantins, Tapajós, middle-lower Madeira, Negro, Branco, Trombetas, Amazonas main channel
Loricariichthys platymetopon		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Jari, Amazonas main channel, Amazonas Estuary, Paraná-Paraguay
*Loricariichthys stuebelii**		Guaporé, Purus, Juruá, Ucayali, Marañon-Nanay, Japurá, Amazonas main channel
*Loricariichthys ucayalensis***		
Metaloricaria paucidens		Trombetas, Oiapoque, Maroni-Approuague
*Microplecostomus forestii**		Endemic – upper Tocantins
*Nannoplecostomus eleonorae**		Endemic – upper Tocantins
*Nannoxyropsis acicula**		Endemic – Tapajós
Neblinichthys pilosus		Negro, upper Orinoco
*Niobichthys ferrarisi**		Endemic – Negro
*Spectracanthicus punctatissimus**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
*Otocinclus batmani**		Ucayali, Japurá, Amazonas main channel
*Otocinclus caxarari**		Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries
*Otocinclus cocama**		Endemic – Ucayali
Otocinclus hasemani		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Jamanxim, Parnaíba
*Otocinclus hoppei**		Lower Tocantins, middle-lower Madeira, Madeira Shield Tributaries, Ucayali, Amazonas Estuary
Otocinclus huaorani		Ucayali, Marañon-Nanay, Napo-Ambyiacu, Upper Orinoco
*Otocinclus juruenae**		Endemic – Juruena

Taxon	Species	Occurrence
*Otocinclus macrospilus**		Javari, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Amazonas main channel
*Otocinclus mangaba**		Endemic – Middle-lower Madeira
Otocinclus mariae		Mamoré, Guaporé, Beni-Madre de Dios, Curuá-Paru do Oeste, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara
*Otocinclus mura**		Mamoré, middle-lower Madeira, Amazonas main channel
*Otocinclus tapirape**		Endemic – Araguaia
Otocinclus vestitus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Napo-Ambyiacu, Amazonas main channel, Paraná-Paraguay
Otocinclus vittatus		Araguaia, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, Marañon-Nanay, Japurá, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Oxyropsis acutirostra		Negro, upper Orinoco
*Oxyropsis carinata**		Upper Xingu, Japurá, Negro, Amazonas main channel
Oxyropsis wrightiana		Teles Pires, middle-lower Madeira, Japurá, Negro, Amazonas main channel, upper Orinoco
*Panaqolus albivermis**		Endemic – Ucayali
*Panaqolus albomaculatus**		Ucayali, Marañon-Nanay, Napo-Ambyiacu
*Panaqolus changae**		Purus, Juruá, Ucayali, Marañon-Nanay
*Panaqolus claustellifer**		Endemic – Branco
*Panaqolus dentex**		Marañon-Nanay, Napo-Ambyiacu
*Panaqolus gnomus**		Marañon-Nanay, Napo-Ambyiacu
*Panaqolus nix**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios, middle-lower Madeira)
*Panaqolus nocturnus**		Marañon-Nanay, Napo-Ambyiacu
*Panaqolus purusiensis**		Endemic – Purus
*Panaqolus tankei**		Endemic – lower Xingu
*Panaque armbrusteri**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Jamanxim
*Panaque bathyphilus**		Marañon-Nanay, Amazonas main channel
*Panaque schaeferi**		Middle-lower Madeira, Purus, Ucayali, Marañon-Nanay, Amazonas main channel
*Panaque titan**		Endemic – Napo-Ambyiacu
*Parancistrus aurantiacus**		Araguaia, lower Tocantins, upper Xingu, Iriri, Ucayali
*Parancistrus nudiventris**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
*Pareiorhaphis regani**		Negro
*Parotocinclus amazonensis**		Middle-lower Madeira, Amazonas main channel
*Parotocinclus aripuanensis**		Endemic – Madeira Shield Tributaries
Parotocinclus britskii		Araguaia, lower Tocantins, Branco, Amazonas main channel, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
*Parotocinclus collinsae**		Endemic – Branco
*Parotocinclus dani**		Endemic – Teles Pires
Parotocinclus halbothi		Trombetas, Maroni-Approuague
*Parotocinclus longirostris**		Endemic – Amazonas main channel

Taxon	Species	Occurrence
Parotocinclus polyochrus		Negro, upper Orinoco
*Parotocinclus variola**		Endemic – Amazonas main channel
*Parotocinclus yaka**		Endemic – Negro
*Peckoltia braueri**		Branco, Amazonas main channel
*Peckoltia brevis**		Lower Tocantins, Mamoré, Guaporé, Purus, Juruá, Amazonas main channel
Peckoltia cavatica		Tapajós, Essequibo
*Peckoltia compta**		Restricted to Tapajós basin (Tapajós, Jamanxim)
*Peckoltia ephippiata**		Endemic – Madeira Shield Tributaries
*Peckoltia furcata**		Ucayali, Marañon-Nanay, Amazonas main channel
*Peckoltia multispinis***		
Peckoltia oligospila		Upper Tocantins, lower Tocantins, Capim
*Peckoltia pankimpuju**		Endemic – Amazonas main channel
*Peckoltia relictum**		Endemic – Marañon
Peckoltia sabaji		Lower Xingu, Teles Pires, Tapajós, Negro, Branco, Jari, Essequibo, upper Orinoco
*Peckoltia vermiculata***		
Peckoltia vittata		Upper Tocantins, Araguaia, lower Tocantins, Anapu, upper Xingu, Iriri, lower Xingu, Tapajós, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, Gurupi-Turiaçu, Capim, upper Orinoco
Peckoltichthys bachi		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Amazonas main channel, upper Orinoco
*Planiloricaria cryptodon**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Putumayo, Amazonas main channel
*Pseudacanthicus histrix***		Lower Tocantins, upper Xingu, lower Xingu, Purus, Japurá, lower Orinoco, upper Orinoco, Apure
Pseudacanthicus leopardus		Upper Xingu, lower Xingu, Branco, Essequibo
*Pseudacanthicus major**		Restricted to Tocantins basin (upper Tocantins, lower Tocantins)
*Pseudacanthicus pirarara**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
*Pseudacanthicus pitanga**		Restricted to Tocantins basin (upper Tocantins, lower Tocantins)
Pseudacanthicus serratus		Upper Tocantins, lower Tocantins, Maroni-Approuague, Coppename-Suriname-Saramacca, Essequibo
Pseudacanthicus spinosus		Lower Tocantins, Anapu, Pacajá, upper Xingu, lower Xingu, Negro, Urubu-Uatumã, Amazonas main channel, Amazonas Estuary, Capim, lower Orinoco
*Pseudancistrus asurini**		Restricted to Xingu basin (Iriri, lower Xingu)
*Pseudancistrus kayabi**		Endemic – Teles Pires
Pseudancistrus nigrescens		Branco, Essequibo
Pseudancistrus pectegenitor		Negro, upper Orinoco
Pseudancistrus sidereus		Negro, upper Orinoco
*Pseudancistrus zawadzkii**		Endemic – Tapajós
*Pseudohemiodon amazonum**		Endemic – Trombetas
*Pseudohemiodon apithanos**		Endemic – Putumayo
*Pseudohemiodon lamina**		Beni-Madre de Dios

Taxon	Species	Occurrence
*Pseudohemiodon thorectes**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
*Pseudolithoxus kinja**		Madeira Shield Tributaries, Urubu-Uatumã, Trombetas
Pseudolithoxus nicoi		Negro, upper Orinoco
Pseudoloricaria laeviuscula		Araguaia, lower Xingu, Tapajós, Jamanxim, middle-lower Madeira, Madeira Shield Tributaries, Negro, Branco, Trombetas, Amazonas main channel, upper Orinoco
*Pseudorinelepis genibarbis**		Middle-lower Madeira, Purus, Juruá, Ucayali, Napo-Ambyiacu, Putumayo, Branco, Amazonas main channel
*Pterosturisoma microps**		Mamoré, Guaporé, middle-lower Madeira, Putumayo, Amazonas main channel
*Pterygoplichthys disjunctivus**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
Pterygoplichthys gibbiceps		Lower Tocantins, Tapajós, Purus, Putumayo, Negro, Branco, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Pterygoplichthys joselimaianus**		Restricted to Tocantins basin (upper Tocantins, Araguaia, lower Tocantins)
*Pterygoplichthys lituratus**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Juruá, Amazonas main channel
Pterygoplichthys multiradiatus		Beni-Madre de Dios, lower Orinoco, upper Orinoco, Apure
*Pterygoplichthys pardalis**		Mamoré, Guaporé, middle-lower Madeira, Purus, Ucayali, Napo-Ambyiacu, Putumayo, Amazonas main channel
Pterygoplichthys punctatus		Lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, Purus, Juruá, Ucayali, Putumayo, Amazonas main channel, Itapicuru-Mearim, Capim
*Pterygoplichthys scrophus**		Purus, Ucayali, Amazonas main channel
*Pterygoplichthys weberi**		Marañon-Nanay, Napo-Ambyiacu, Japurá, Amazonas main channel
*Pterygoplichthys xinguensis**		Restricted to Xingu basin (upper Xingu, lower Xingu)
*Reganella depressa**		Lower Xingu, Tapajós, Guaporé, Negro, Branco, Trombetas, Amazonas main channel
*Rhadinoloricaria bahuaja**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus
*Rhadinoloricaria rhami**		Juruá, Ucayali, Amazonas main channel
*Rhadinoloricaria macromystax***		
*Rhinolekos capetinga**		Endemic – upper Tocantins
Rineloricaria aurata		Guaporé, Paraná-Paraguay
*Rineloricaria beni**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios)
*Rineloricaria castroi**		Branco, Trombetas, Amazonas main channel
*Rineloricaria daraha**		Endemic – Negro
Rineloricaria fallax		Japurá, Negro, Branco, Trombetas, Corentyne-Demerara, Essequibo
Rineloricaria formosa		Mamoré, middle-lower Madeira, Negro, Branco, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Rineloricaria hasemani		Upper Tocantins, Araguaia, Branco, Capim
*Rineloricaria heteroptera**		Endemic – Amazonas main channel
*Rineloricaria jurupari**		Endemic – Negro
*Rineloricaria konopickyi***		
Rineloricaria lanceolata		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Ucayali, Marañon-Nanay, Negro, Branco, Trombetas, Amazonas main channel, Essequibo, Paraná-Paraguay

Taxon	Species	Occurrence
*Rineloricaria melini**		Endemic – Amazonas main channel
*Rineloricaria microlepidota**		Endemic – Juruá
*Rineloricaria morrowi**		Endemic – Ucayali
*Rineloricaria osvaldoi**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Rineloricaria phoxocephala**		Purus, Coari-Urucu, Branco, Amazonas main channel
Rineloricaria stewarti		Branco, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
*Rineloricaria teffeana**		Endemic – Amazonas main channel
*Rineloricaria wolfei**		Endemic – Ucayali
*Scobinancistrus aureatus**		Restricted to Xingu basin (upper Xingu, lower Xingu)
*Scobinancistrus pariolispos**		Lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós
*Spatuloricaria caquetae**		Putumayo, Japurá
*Spatuloricaria euacanthagenys***		Japurá
Spatuloricaria evansii		Upper Tocantins, Araguaia, lower Tocantins, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Marañon-Nanay, Urubu-Uatumã, Trombetas, Paraná-Paraguay
*Spatuloricaria puganensis***		Beni-Madre de Dios, Purus, Juruá
*Spatuloricaria tuira**		Upper Xingu, Iriri, lower Xingu, Teles Pires, Jamanxim
*Spectracanthicus immaculatus**		Endemic – Tapajós
*Spectracanthicus javae**		Endemic – Araguaia
*Spectracanthicus murinus**		Restricted to Tapajós basin (Teles Pires, Tapajós, Jamanxim)
*Spectracanthicus punctatissimus**		Endemic – lower Xingu
*Spectracanthicus tocantinensis**		Endemic – lower Tocantins
*Spectracanthicus zuanoni**		Endemic – lower Xingu
*Sturisoma brevirostre**		Endemic – Amazonas main channel
*Sturisoma graffini**		Endemic – Beni-Madre de Dios
*Sturisoma guentheri**		Marañon-Nanay, Napo-Ambyiacu
*Sturisoma lyra**		Mamoré, middle-lower Madeira, Juruá
Sturisoma monopelte		Branco, Essequibo
*Sturisoma nigrirostrum**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Putumayo
*Sturisoma rostratum**		Upper Tocantins, Araguaia, lower Tocantins, Jamanxim
Sturisoma tenuirostre		Branco, lower Orinoco, upper Orinoco, Apure
*Sturisomatichthys caquetae**		Endemic – Japurá
Scoloplacidae	6	
*Scoloplax baileyi**		Negro, Amazonas main channel
*Scoloplax baskini**		Middle-lower Madeira, Madeira Shield Tributaries, Purus, Branco
*Scoloplax dicra**		Mamoré, Guaporé, Beni-Madre de Dios, Negro, Branco, Amazonas main channel
Scoloplax distolothrix		Araguaia, upper Xingu, lower Xingu, Paraná-Paraguay
*Scoloplax dolicholophia**		Negro, Amazonas main channel
Scoloplax empousa		Guaporé, Paraná-Paraguay

Taxon	Species	Occurrence
Trichomycteridae	75	
*Acanthopoma annectens**		Mamoré, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Amazonas main channel
*Ammoglanis amapaensis**		Endemic – Jari
*Ammoglanis diaphanus**		Endemic – Araguaia
Ammoglanis pulex		Amazonas main channel, upper Orinoco
*Apomatoceros alleni**		Middle-lower Madeira, Marañon-Nanay, Amazonas main channel
Glanapteryx anguilla		Negro, Branco, upper Orinoco
*Glanapteryx niobium**		Endemic – Negro
Haemomaster venezuelae		Upper Tocantins, Araguaia, upper Xingu, Teles Pires, Juruena, Madeira Shield Tributaries, Negro, Branco, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Henonemus intermedius**		Endemic – Araguaia
*Henonemus macrops**		Endemic – Amazonas main channel
Henonemus punctatus		Upper Tocantins, Araguaia, lower Xingu, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Napo-Ambyiacu, Putumayo, Branco, Amazonas main channel, Essequibo
Ituglanis amazonicus		Upper Xingu, Jamanxim, Mamoré, middle-lower Madeira, Amazonas main channel, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco
*Ituglanis apteryx**		Endemic – Iriri
*Ituglanis bambui**		Endemic – upper Tocantins
*Ituglanis boticario**		Endemic – upper Tocantins
*Ituglanis compactus**		Endemic – Jari
*Ituglanis epikarsticus**		Endemic – upper Tocantins
Ituglanis goya		Upper Tocantins, Paraná-Paraguay
*Ituglanis ina**		Endemic – lower Tocantins
*Ituglanis macunaima**		Endemic – Araguaia
*Ituglanis mambai**		Endemic – upper Tocantins
*Ituglanis parkoi**		Endemic – Javari
*Ituglanis passensis**		Endemic – upper Tocantins
*Ituglanis ramiroi**		Endemic – upper Tocantins
Malacoglanis gelatinosus		Japurá, upper Orinoco
Megalocentor echthrus		Mamoré, middle-lower Madeira, Purus, Juruá, Japurá, Negro, Branco, Amazonas main channel, lower Orinoco
*Miuroglanis platycephalus**		Beni-Madre de Dios, middle-lower Madeira, Purus, Urubu-Uatumã, Amazonas main channel
Ochmacanthus alternus		Lower Tocantins, Guaporé, Putumayo, Negro, Branco, Amazonas main channel, Essequibo, lower Orinoco, Apure
Ochmacanthus orinoco		Araguaia, lower Tocantins, lower Xingu, Madeira Shield Tributaries, Negro, Branco, Amazonas main channel, upper Orinoco, Apure
Ochmacanthus reinhardtii		Upper Xingu, lower Xingu, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Tefé, Juruá, Napo-Ambyiacu, Putumayo, Negro, Branco, Essequibo

Taxon	Species	Occurrence
Paracanthopoma parva		Upper Tocantins, Araguaia, upper Xingu, Teles Pires, Juruena, Tapajós, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Marañon-Nanay, Napo-Ambyiacu, Negro, Branco, Trombetas, Jari, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
*Pareiodon microps**		Araguaia, middle-lower Madeira, Amazonas main channel
*Plectrochilus diabolicus**		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Juruá, Amazonas main channel
*Plectrochilus machadoi**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Amazonas main channel
*Plectrochilus wieneri**		Endemic – Napo-Ambyiacu
*Potamoglanis anhanga**		Madeira Shield Tributaries, Amazonas main channel
Potamoglanis hasemani		Anapu, Teles Pires, Juruena, Tapajós, middle-lower Madeira, Purus, Coari-Urucu, Negro, Branco, Amazonas main channel, Amazonas Estuary, Gurupi-Turiaçu, Capim, Essequibo
Potamoglanis johnsoni		Jari, Amazonas main channel, Paraná-Paraguay
*Potamoglanis wapixana**		Endemic – Branco
Pseudostegophilus nemurus		Lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Napo-Ambyiacu, Japurá, Negro, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco
*Pygidianops amphioxus**		Negro, Amazonas main channel
*Pygidianops eigenmanni**		Restricted to Negro basin (Negro, Branco)
Pygidianops magoi		Branco, lower Orinoco, upper Orinoco
Sarcoglanis simplex		Negro, Branco, upper Orinoco
Schultzichthys bondi		Middle-lower Madeira, Napo-Ambyiacu, lower Orinoco, upper Orinoco, Apure
*Stauroglanis gouldingi**		Negro, Amazonas main channel
Stegophilus panzeri		Lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Jamanxim, Madeira Shield Tributaries, Capim
Stenolicmus ix		Curuá-Paru do Oeste, Maroni-Approuague
*Stenolicmus sarmientoi**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
Trichomycterus barbouri		Beni-Madre de Dios, Paraná-Paraguay
*Trichomycterus bomboizanus**		Endemic – Marañon
*Trichomycterus chaberti**		Endemic – Mamoré
*Trichomycterus dispar**		Beni-Madre de Dios, Ucayali
*Trichomycterus fassli**		Endemic – Beni-Madre de Dios
*Trichomycterus gabrieli**		Restricted to Negro basin (Negro, Branco)
Trichomycterus guianense		Branco, Essequibo, lower Orinoco
*Trichomycterus megantoni**		Endemic – Ucayali
Trichomycterus nigromaculatus		Putumayo, Cauca-Magdalena-Sinu, Atrato
*Trichomycterus oroyae**		Endemic – Ucayali
*Trichomycterus punctatissimus**		Endemic – Araguaia
*Trichomycterus rivulatus**		Beni-Madre de Dios, Ucayali
*Trichomycterus taczanowskii**		Endemic – Marañon
*Trichomycterus taeniops**		Endemic – Ucayali

Taxon	Species	Occurrence
*Trichomycterus tiraquae***		
*Trichomycterus vittatus**		Beni-Madre de Dios, Marañon-Nanay
*Trichomycterus weyrauchi**		Endemic – Ucayali
*Tridens melanops**		Mamoré, Purus, Putumayo, Amazonas main channel
*Tridensimilis brevis**		Mamoré, middle-lower Madeira, Amazonas main channel
*Tridentopsis pearsoni***		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus
*Tridentopsis tocantinsi**		Upper Tocantins, Araguaia
*Typhlobelus auriculatus**		Endemic – lower Xingu
*Typhlobelus macromycterus**		Lower Tocantins, lower Xingu
*Typhlobelus ternetzi**		Endemic – Negro
Vandellia cirrhosa		Upper Tocantins, Araguaia, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Gurupi-Turiaçu, Capim, upper Orinoco, Apure
Vandellia sanguinea		Upper Tocantins, Araguaia, Tapajós, middle-lower Madeira, Purus, Branco, Jari, Amazonas main channel, Essequibo, lower Orinoco
Gymnotiformes	**164**	
Apteronotidae	62	
*Adontosternarchus balaenops**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Putumayo, Japurá, Amazonas main channel
Apteronotus bonapartii		Upper Tocantins, upper Xingu, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Tefé, Ucayali, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Adontosternarchus clarkae		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Napo-Ambyiacu, Negro, Amazonas main channel, upper Orinoco
*Adontosternarchus duartei**		Endemic – Purus
*Adontosternarchus nebulosus**		Middle-lower Madeira, Purus, Tefé, Juruá, Negro, Trombetas, Amazonas main channel
Adontosternarchus sachsi		Lower Tocantins, Mamoré, Guaporé, Purus, Tefé, Negro, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Apteronotus albifrons		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Ucayali, Branco, Urubu-Uatumã, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
*Apteronotus camposdapazi**		Endemic – upper Tocantins
*Apteronotus lindalvae**		Endemic – Urubu-Uatumã
*Apteronotus macrolepis**		Endemic – Amazonas main channel
Compsaraia compsus		Madeira Shield Tributaries, Negro, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Compsaraia iara**		Middle-lower Madeira, Branco, Amazonas main channel, Amazonas Estuary
*Compsaraia samueli**		Putumayo, Amazonas main channel
*Megadontognathus kaitukaensis**		Upper Xingu, Teles Pires, Tapajós
*Melanosternarchus amaru**		Lower Xingu, Purus, Negro, Amazonas main channel

Taxon	Species	Occurrence
*Orthosternarchus tamandua**		Middle-lower Madeira, Purus, Negro, Branco, Amazonas main channel
*Parapteronotus hasemani**		Endemic – Amazonas main channel
*Pariosternarchus amazonensis**		Middle-lower Madeira, Amazonas main channel
*Platyurosternarchus crypticus**		Endemic – Branco
Platyurosternarchus macrostoma		Araguaia, lower Tocantins, upper Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Jari, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco, Apure
*Porotergus duende**		Middle-lower Madeira, Ucayali, Japurá, Negro, Amazonas main channel
Porotergus gimbeli		Lower Tocantins, Anapu, Pacajá, Mamoré, Guaporé, middle-lower Madeira, Coari-Urucu, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Essequibo
Porotergus gymnotus		Mamoré, Guaporé, Maroni-Approuague, Corentyne-Demerara, Essequibo
*Sternarchorhynchus axelrodi**		Restricted to Tocantins basin (upper Tocantins, lower Tocantins)
*Sternarchorhynchus caboclo**		Endemic – Branco
*Sternarchorhynchus chaoi**		Restricted to Madeira basin (Mamoré, middle-lower Madeira)
*Sternarchorhynchus cramptoni**		Mamoré, Marañon-Nanay, Amazonas main channel
*Sternarchorhynchus curumim**		Endemic – Amazonas main channel
*Sternarchorhynchus curvirostris**		Endemic – Marañon
*Sternarchorhynchus goeldii**		Lower Tocantins, Mamoré, middle-lower Madeira, Purus, Negro, Amazonas main channel
*Sternarchorhynchus hagedornae**		Endemic – Beni-Madre de Dios
*Sternarchorhynchus higuchii**		Endemic – Urubu-Uatumã
*Sternarchorhynchus inpai**		Endemic – Trombetas
*Sternarchorhynchus jaimei**		Endemic – Urubu-Uatumã
*Sternarchorhynchus kokraimoro**		Endemic – lower Xingu
*Sternarchorhynchus mareikeae**		Endemic – Trombetas
*Sternarchorhynchus mesensis**		Endemic – upper Tocantins
*Sternarchorhynchus montanus**		Endemic – Amazonas main channel
*Sternarchorhynchus mormyrus**		Purus, Negro, Amazonas main channel
Sternarchorhynchus oxyrhynchus		Branco, lower Orinoco
*Sternarchorhynchus retzeri**		Negro, Trombetas, Amazonas main channel
*Sternarchorhynchus schwassmanni**		Endemic – Araguaia
*Sternarchorhynchus severii**		Endemic – Branco
*Sternarchorhynchus starksi**		Lower Xingu, Amazonas main channel, Amazonas Estuary
*Sternarchorhynchus stewarti**		Beni-Madre de Dios, Juruá, Marañon-Nanay, Napo-Ambyiacu, Amazonas main channel
*Sternarchorhynchus taphorni**		Ucayali, Marañon-Nanay
*Sternarchorhynchus villasboasi**		Endemic – lower Xingu
Sternarchorhynchus yepezi		Amazonas main channel, Apure
*Sternarchella calhamazon**		Lower Xingu, middle-lower Madeira, Marañon-Nanay, Napo-Ambyiacu, Negro, Trombetas, Amazonas main channel, Amazonas Estuary

Taxon	Species	Occurrence
*Sternarchella duccis**		Purus, Japurá, Negro, Branco, Amazonas main channel
Sternarchella orthos		Middle-lower Madeira, Napo-Ambyiacu, Amazonas main channel, Amazonas Estuary, lower Orinoco, upper Orinoco, Apure
*Sternarchella patriciae**		Endemic – Beni-Madre de Dios
*Sternarchella raptor**		Jutaí, Japurá, Negro, Branco, Amazonas main channel
*Sternarchella rex**		Endemic – Amazonas main channel
*Sternarchella schotti**		Endemic – Amazonas main channel
Sternarchella sima		Upper Xingu, Mamoré, Jari, Amazonas main channel, Amazonas Estuary, Capim
*Sternarchogiton labiatus**		Endemic – Amazonas main channel
Sternarchogiton nattereri		Upper Tocantins, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Purus, Ucayali, Japurá, Negro, Branco, Amazonas main channel, lower Orinoco
Sternarchogiton porcinum		Guaporé, Branco, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Sternarchogiton preto		Lower Tocantins, Anapu, Pacajá, Mamoré, middle-lower Madeira, Purus, Negro, Amazonas main channel, upper Orinoco, Apure
*Sternarchogiton zuanoni**		Endemic – lower Xingu
Sternarchorhamphus muelleri		Middle-lower Madeira, Juruá, Ucayali, Negro, Branco, Trombetas, Amazonas main channel, Capim, Araguari-Macari-Amapá, lower Orinoco, upper Orinoco, Apure
Gymnotidae	26	
Electrophorus electricus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Gymnotus arapaima**		Tefé, Amazonas main channel
*Gymnotus capanema**		Endemic – Amazonas Estuary
Gymnotus carapo		Upper Tocantins, Araguaia, lower Tocantins, Iriri, lower Xingu, Teles Pires, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Juruá, Ucayali, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Gymnotus cataniapo		Negro, Amazonas Estuary, Maroni-Approuague, Essequibo, upper Orinoco
*Gymnotus chaviro**		Beni-Madre de Dios, Ucayali
*Gymnotus coatesi**		Lower Tocantins, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Amazonas main channel
Gymnotus coropinae		Lower Tocantins, Tapajós, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Japurá, Negro, Trombetas, Amazonas main channel, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
*Gymnotus curupira**		Mamoré, Beni-Madre de Dios, middle-lower Madeira, Tefé, Ucayali, Napo-Ambyiacu, Putumayo
*Gymnotus diamantinensis**		Restricted to Tapajós basin (Teles Pires, Juruena)
*Gymnotus eyra**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios, Ucayali)
Gymnotus inaequilabiatus		Guaporé, Paraná-Paraguay
*Gymnotus javari**		Javari, Ucayali, Napo-Ambyiacu, Amazonas main channel
*Gymnotus jonasi**		Middle-lower Madeira, Ucayali, Amazonas main channel

Taxon	Species	Occurrence
*Gymnotus mamiraua**		Endemic – Amazonas main channel
*Gymnotus melanopleura**		Endemic – Amazonas main channel
*Gymnotus obscurus**		Endemic – Amazonas main channel
*Gymnotus onca**		Endemic – Amazonas main channel
Gymnotus pantanal		Mamoré, Guaporé, Beni-Madre de Dios, Paraná-Paraguay
Gymnotus pedanopterus		Madeira Shield Tributaries, Negro, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
*Gymnotus riberalta**		Restricted to Madeira basin (Guaporé, Beni-Madre de Dios)
Gymnotus stenoleucus		Negro, Amazonas main channel, lower Orinoco, upper Orinoco
*Gymnotus tigre**		Marañon-Nanay, Amazonas main channel
*Gymnotus tiquie**		Endemic – Negro
*Gymnotus ucamara**		Endemic – Ucayali
*Gymnotus varzea**		Ucayali, Marañon-Nanay, Amazonas main channel
Hypopomidae	24	
*Brachyhypopomus alberti**		Restricted to Madeira basin (Mamoré, Guaporé)
*Brachyhypopomus arrayae**		Restricted to Madeira basin (Beni-Madre de Dios, middle-lower Madeira)
*Brachyhypopomus batesi**		Negro, Amazonas main channel
Brachyhypopomus beebei		Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Purus, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Brachyhypopomus belindae**		Endemic – Amazonas main channel
*Brachyhypopomus benjamini**		Ucayali, Marañon-Nanay
*Brachyhypopomus bennetti**		Beni-Madre de Dios, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Amazonas main channel, Amazonas Estuary
Brachyhypopomus bombilla		Mamoré, Guaporé, Beni-Madre de Dios, Paraná-Paraguay
Brachyhypopomus brevirostris		Araguaia, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Marañon-Nanay, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Brachyhypopomus bullocki		Negro, Branco, Essequibo, lower Orinoco, upper Orinoco, Apure
*Brachyhypopomus cunia**		Restricted to Madeira basin (Guaporé, middle-lower Madeira)
*Brachyhypopomus flavipomus**		Javari, Amazonas main channel
*Brachyhypopomus hamiltoni**		Middle-lower Madeira, Marañon-Nanay, Japurá, Negro, Urubu-Uatumã, Amazonas main channel
Brachyhypopomus hendersoni		Tefé, Japurá, Negro, Amazonas main channel, Essequibo
Brachyhypopomus pinnicaudatus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Amazonas main channel, Amazonas Estuary, Itapicuru-Mearim, Capim, Oiapoque
*Brachyhypopomus provenzanoi**		Upper Negro, upper Orinoco

Taxon	Species	Occurrence
Brachyhypopomus regani		Araguaia, Tapajós, Jamanxim, middle-lower Madeira, Purus, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Maroni-Approuague, lower Orinoco, upper Orinoco, Apure
Brachyhypopomus sullivani		Teles Pires, Juruena, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Tefé, Napo-Ambyiacu, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Essequibo, upper Orinoco
*Brachyhypopomus verdii**		Endemic – Marañon
Brachyhypopomus walteri		Upper Tocantins, Araguaia, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Tefé, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Negro, Branco, Urubu-Uatumã, Amazonas main channel, Capim, Essequibo, Paraná-Paraguay
Hypopomus artedi		Mamoré, Guaporé, Putumayo, Amazonas main channel, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
Microsternarchus bilineatus		Araguaia, Tapajós, Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Tefé, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Capim, lower Orinoco, upper Orinoco, Apure
*Procerusternarchus pixuna**		Endemic – Negro
Racenisia fimbriipinna		Negro, upper Orinoco
Rhamphichthyidae	23	
Gymnorhamphichthys bogardusae		Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Essequibo, lower Orinoco, upper Orinoco, Apure
Gymnorhamphichthys hypostomus		Araguaia, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Marañon-Nanay, Napo-Ambyiacu, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Essequibo, lower Orinoco, upper Orinoco
Gymnorhamphichthys rondoni		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Coari-Urucu, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
Gymnorhamphichthys rosamariae		Lower Xingu, Tapajós, Jutaí, Negro, Amazonas main channel, Amazonas Estuary, Essequibo, lower Orinoco, upper Orinoco, Paraná-Paraguay
*Hypopygus benoneae**		Endemic – Anapu
Hypopygus cryptogenes		Negro, upper Orinoco
*Hypopygus hoedemani**		Endemic – Negro
Hypopygus lepturus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Paraná-Paraguay
Hypopygus minissimus		Negro, upper Orinoco
Hypopygus neblinae		Negro, Corentyne-Demerara, lower Orinoco, upper Orinoco, Apure
*Hypopygus nijsseni**		Tefé, Amazonas main channel

Taxon	Species	Occurrence
*Hypopygus ortegai**		Ucayali, Amazonas main channel
*Hypopygus varii**		Endemic – Trombetas
*Iracema caiana**		Endemic – Amazonas main channel
Rhamphichthys drepanium		Mamoré, Tefé, Negro, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Rhamphichthys heleios**		Mamoré, Amazonas main channel
*Rhamphichthys lineatus**		Ucayali, Amazonas main channel
*Rhamphichthys longior***		Trombetas, Curuá-Paru do Oeste
Rhamphichthys pantherinus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Tefé, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, Araguari-Macari-Amapá, upper Orinoco
Rhamphichthys rostratus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Tefé, Negro, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Araguari-Macari-Amapá, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, upper Orinoco
Steatogenys duidae		Middle-lower Madeira, Negro, Branco, Curuá-Paru do Oeste, Amazonas main channel, Capim, lower Orinoco, upper Orinoco
*Steatogenys elegans**		Lower Tocantins, Tapajós, middle-lower Madeira, Purus, Putumayo, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Steatogenys ocellatus		Anapu, Pacajá, Tapajós, middle-lower Madeira, Purus, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Essequibo, lower Orinoco, upper Orinoco
Sternopygidae	29	
*Archolaemus blax**		Upper Tocantins, lower Tocantins, Branco
Archolaemus ferreirai		Branco, Capim
*Archolaemus janeae**		Upper Xingu, Iriri, lower Xingu, Jamanxim
Archolaemus luciae		Upper Xingu, Teles Pires, Tapajós, Jamanxim, Trombetas, Jari, Araguari-Macari-Amapá
*Archolaemus santosi**		Endemic – Middle-lower Madeira
Distocyclus conirostris		Lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Negro, Trombetas, Amazonas main channel, Amazonas Estuary, Essequibo, lower Orinoco, upper Orinoco, Apure
*Eigenmannia antonioi**		Endemic – Anapu
Eigenmannia limbata		Middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Negro, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Eigenmannia loretana**		Ucayali, Marañon-Nanay
Eigenmannia macrops		Araguaia, upper Xingu, Iriri, Mamoré, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Branco, Parnaíba, Essequibo, lower Orinoco, upper Orinoco, Apure
*Eigenmannia matintapereira**		Endemic – Negro
*Eigenmannia muirapinima**		Endemic – Amazonas main channel
Eigenmannia nigra		Araguaia, lower Tocantins, Napo-Ambyiacu, Negro, Amazonas main channel, Amazonas Estuary, Essequibo, lower Orinoco, upper Orinoco, Apure

Taxon	Species	Occurrence
*Eigenmannia vicentespelaea**		Endemic – upper Tocantins
Eigenmannia virescens		Upper Tocantins, Araguaia, upper Xingu, lower Xingu, Guaporé, Beni-Madre de Dios, Ucayali, Putumayo, Japurá, Branco, Trombetas, Amazonas main channel, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Cauca-Magdalena-Sinu, Paraná-Paraguay
*Eigenmannia waiwai**		Endemic – Trombetas
Rhabdolichops caviceps		Upper Tocantins, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Napo-Ambyiacu, Japurá, Negro, Branco, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Rhabdolichops eastwardi		Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Napo-Ambyiacu, Negro, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Rhabdolichops electrogrammus		Middle-lower Madeira, Negro, Branco, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
*Rhabdolichops lundbergi**		Endemic – Amazonas main channel
*Rhabdolichops navalha**		Tefé, Amazonas main channel
*Rhabdolichops nigrimans**		Tefé, Negro, Amazonas main channel
Rhabdolichops stewarti		Teles Pires, Tapajós, lower Orinoco, upper Orinoco
Rhabdolichops troscheli		Lower Tocantins, Mamoré, Guaporé, middle-lower Madeira, Purus, Tefé, Negro, Branco, Trombetas, Amazonas main channel, lower Orinoco
Sternopygus astrabes		Tefé, Negro, Urubu-Uatumã, Amazonas main channel, upper Orinoco
*Sternopygus branco**		Tefé, Japurá, Negro, Trombetas, Amazonas main channel
Sternopygus macrurus		Upper Tocantins, Araguaia, lower Tocantins, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Tefé, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Parnaíba, Itapicuru-Mearim, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Cauca-Magdalena-Sinu, Paraná-Paraguay
*Sternopygus obtusirostris**		Lower Tocantins, Tefé, Negro, Branco, Amazonas main channel
*Sternopygus xingu**		Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu
Batrachoidiformes	**2**	
Batrachoididae	2	
*Potamobatrachus trispinosus**		Restricted to Tocantins basin (Araguaia, lower Tocantins)
*Thalassophryne amazonica**		Lower Xingu, Marañon-Nanay, Putumayo, Negro, Amazonas main channel
Cyprinodontiformes	**166**	
Anablepidae	1	
Jenynsia alternimaculata		Mamoré, Guaporé, Paraná-Paraguay
Cynolebiidae	141	
*Anablepsoides amanan**		Endemic – Amazonas main channel
*Anablepsoides atratus**		Middle-lower Madeira, Purus, Juruá, Amazonas main channel
*Anablepsoides beniensis**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
*Anablepsoides cajariensis**		Endemic – Amazonas Estuary
*Anablepsoides chapare**		Endemic – Mamoré

Taxon	Species	Occurrence
*Anablepsoides christinae**		Endemic – Beni-Madre de Dios
*Anablepsoides derhami**		Endemic – Ucayali
*Anablepsoides elongatus**		Endemic – Ucayali
*Anablepsoides erberi**		Endemic – Napo-Ambyiacu
*Anablepsoides gamae**		Endemic – Jari
*Anablepsoides henschelae**		Endemic – Negro
*Anablepsoides hoetmeri**		Endemic – Purus
*Anablepsoides intermittens**		Endemic – Amazonas main channel
*Anablepsoides iridescens**		Endemic – Ucayali
*Anablepsoides jari**		Endemic – Jari
*Anablepsoides jucundus**		Endemic – Marañon
*Anablepsoides limoncochae**		Napo-Ambyiacu, Japurá, Amazonas main channel
*Anablepsoides lineasoppilatae**		Endemic – Beni-Madre de Dios
*Anablepsoides luitalimae**		Endemic – Middle-lower Madeira
*Anablepsoides micropus**		Negro, Amazonas main channel
*Anablepsoides monticola**		Endemic – Marañon
*Anablepsoides ophiomimus**		Napo-Ambyiacu, Japurá, Amazonas main channel
*Anablepsoides ornatus**		Middle-lower Madeira, Negro, Branco, Trombetas, Amazonas main channel
*Anablepsoides ottonii**		Endemic – Negro
*Anablepsoides parlettei**		Endemic – Beni-Madre de Dios
*Anablepsoides peruanus***		
*Anablepsoides roraima**		Endemic – Branco
*Anablepsoides rubrolineatus**		Ucayali, Putumayo, Amazonas main channel
*Anablepsoides speciosus**		Endemic – Amazonas main channel
Anablepsoides stagnatus		Branco, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
*Anablepsoides taeniatus**		Purus, Japurá, Negro, Amazonas main channel
*Anablepsoides tocantinensis**		Endemic – upper Tocantins
Anablepsoides urophthalmus		Upper Tocantins, lower Tocantins, lower Xingu, Putumayo, Jari, Amazonas main channel, Itapicuru-Mearim, Gurupi-Turiaçu, Capim
*Anablepsoides urubuiensis**		Endemic – Urubu-Uatumã
*Anablepsoides xanthonotus***		
*Anablepsoides xinguensis**		Endemic – lower Xingu
*Aphyolebias boticarioi**		Endemic – Purus
*Aphyolebias claudiae**		Endemic – Guaporé
*Aphyolebias manuensis**		Endemic – Beni-Madre de Dios
*Aphyolebias obliquus**		Endemic – Mamoré
*Aphyolebias peruensis**		Napo-Ambyiacu, Amazonas main channel
*Aphyolebias rubrocaudatus**		Endemic – Beni-Madre de Dios
*Aphyolebias schleseri**		Endemic – Amazonas main channel

Taxon	Species	Occurrence
*Aphyolebias wischmanni**		Endemic – Ucayali
*Austrofundulus rupununi**		Endemic – Branco
*Austrolebias accorsii**		Endemic – Mamoré
Austrolebias monstrosus		Guaporé, Paraná-Paraguay
Austrolebias vandenbergi		Guaporé, Paraná-Paraguay
*Cynolebias griseus**		Endemic – upper Tocantins
*Hypsolebias brunoi**		Endemic – upper Tocantins
*Hypsolebias flammeus**		Endemic – upper Tocantins
*Hypsolebias marginatus**		Endemic – upper Tocantins
*Hypsolebias multiradiatus**		Endemic – upper Tocantins
*Hypsolebias notataus**		Endemic – upper Tocantins
*Hypsolebias radiosus**		Endemic – upper Tocantins
*Hypsolebias tocantinensis**		Endemic – upper Tocantins
*Laimosemion amanapira**		Endemic – Negro
*Laimosemion dibaphus**		Tapajós, Trombetas
*Laimosemion gili**		Endemic – Negro
*Laimosemion kirovskyi**		Endemic – Urubu-Uatumã
*Laimosemion jauaperi**		Endemic – Negro
*Laimosemion leticia**		Endemic – Amazonas main channel
*Laimosemion rectocaudatus**		Endemic – Amazonas main channel
*Laimosemion romeri**		Endemic – Negro
Laimosemion tecminae		Negro, upper Orinoco
*Laimosemion uakti**		Endemic – Negro
*Laimosemion uatuman**		Endemic – Urubu-Uatumã
*Laimosemion ubim**		Endemic – Japurá
*Maratecoara formosa**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Maratecoara gesmonei**		Endemic – upper Xingu
*Maratecoara lacortei**		Endemic – Araguaia
*Maratecoara splendida**		Endemic – upper Tocantins
*Melanorivulus britzkei**		Endemic – Teles Pires
*Melanorivulus canesi**		Endemic – Iriri
*Melanorivulus crixas**		Endemic – Araguaia
*Melanorivulus ignescens**		Endemic – Araguaia
*Melanorivulus imperatrizensis**		Endemic – upper Tocantins
*Melanorivulus jalapensis**		Endemic – upper Tocantins
*Melanorivulus javahe**		Endemic – Araguaia
*Melanorivulus karaja**		Endemic – Araguaia
*Melanorivulus kayabi**		Upper Xingu, Teles Pires, Juruena

Taxon	Species	Occurrence
*Melanorivulus kayapo**		Endemic – Araguaia
*Melanorivulus kunzei**		Endemic – Araguaia
*Melanorivulus litteratus**		Endemic – Araguaia
*Melanorivulus megaroni**		Endemic – upper Xingu
*Melanorivulus modestus**		Endemic – Juruena
*Melanorivulus petrisecundi**		Endemic – Araguaia
Melanorivulus pictus		Araguaia, Paraná-Paraguay
*Melanorivulus pindorama**		Endemic – upper Tocantins
*Melanorivulus planaltinus**		Endemic – upper Tocantins
*Melanorivulus rubromarginatus**		Endemic – Araguaia
*Melanorivulus rubroreticulatus**		Endemic – lower Xingu
*Melanorivulus salmonicaudus**		Endemic – Araguaia
*Melanorivulus schuncki**		Endemic – Jari
*Melanorivulus spixi**		Endemic – Araguaia
*Melanorivulus ubirajarai**		Endemic – Araguaia
*Melanorivulus violaceus**		Endemic – Araguaia
*Melanorivulus wallacei**		Endemic – upper Tocantins
*Melanorivulus zygonectes**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Juruena
*Moema apurinan**		Endemic – Purus
*Moema beucheyi**		Endemic – Guaporé
*Moema hellneri**		Endemic – Napo-Ambyiacu
*Moema kenwoodi**		Endemic – Beni-Madre de Dios
*Moema nudifrontata**		Endemic – Branco
*Moema pepotei**		Restricted to Madeira basin (Mamoré, Guaporé)
*Moema portugali**		Endemic – Branco
*Moema quiii**		Endemic – Beni-Madre de Dios
*Moema staecki**		Endemic – Amazonas main channel
*Neofundulus guaporensis**		Endemic – Guaporé
Neofundulus ornatipinnis		Mamoré, Paraná-Paraguay
*Neofundulus splendidus**		Endemic – Mamoré
*Papiliolebias ashleyae**		Endemic – Guaporé
*Papiliolebias francescae**		Endemic – Guaporé
*Papiliolebias habluetzeli**		Endemic – Mamoré
*Pituna compacta**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
*Pituna obliquoseriata**		Endemic – Araguaia
*Pituna poranga**		Endemic – Araguaia
*Pituna xinguensis**		Restricted to Xingu basin (upper Xingu, lower Xingu)
*Plesiolebias altamira**		Endemic – lower Xingu

Taxon	Species	Occurrence
*Plesiolebias aruana**		Endemic – Araguaia
*Plesiolebias canabravensis**		Endemic – upper Tocantins
*Plesiolebias filamentosus**		Endemic – upper Tocantins
*Plesiolebias fragilis**		Endemic – Araguaia
*Plesiolebias lacerdai**		Endemic – Araguaia
*Plesiolebias xavantei**		Endemic – upper Tocantins
Pterolebias longipinnis		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Amazonas main channel, Amazonas Estuary, Paraná-Paraguay
*Rivulus staecki**		Endemic – Negro
*Simpsonichthys cholopteryx**		Endemic – Araguaia
*Spectrolebias bellidoi**		Endemic – Mamoré
*Spectrolebias brousseaui**		Restricted to Madeira basin (Mamoré, Guaporé)
*Spectrolebias costae**		Endemic – Araguaia
*Spectrolebias filamentosus**		Restricted to Madeira basin (Mamoré, Guaporé)
*Spectrolebias gracilis**		Endemic – upper Tocantins
*Spectrolebias inaequipinnatus**		Endemic – upper Tocantins
*Spectrolebias pilleti**		Endemic – Mamoré
*Spectrolebias reticulatus**		Endemic – lower Xingu
*Spectrolebias semiocellatus**		Endemic – Araguaia
*Trigonectes macrophthalmus**		Endemic – Guaporé
*Trigonectes rogoaguae**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
*Trigonectes rubromarginatus**		Endemic – Araguaia
*Trigonectes strigabundus**		Endemic – upper Tocantins
Cyprinodontidae	7	
*Orestias agassizii**		Beni-Madre de Dios, Ucayali
*Orestias empyraeus**		Endemic – Ucayali
*Orestias gymnota**		Endemic – Marañon
*Orestias jussiei**		Endemic – Ucayali
*Orestias munda**		Endemic – Ucayali
*Orestias pentlandii**		Endemic – Ucayali
*Orestias polonorum**		Endemic – Ucayali
Poeciliidae	17	
*Cnesterodon septentrionalis**		Endemic – Araguaia
Fluviphylax obscurus		Negro, lower Orinoco, upper Orinoco
Fluviphylax pygmaeus		Middle-lower Madeira, Amazonas main channel, upper Orinoco
*Fluviphylax simplex**		Endemic – Amazonas main channel
*Fluviphylax zonatus**		Endemic – Negro
*Pamphorichthys akroa**		Endemic – upper Tocantins
*Pamphorichthys araguaiensis**		Upper Tocantins, Araguaia, upper Xingu, lower Xingu, Trombetas

Taxon	Species	Occurrence
*Pamphorichthys minor**		Upper Xingu, lower Xingu, Guaporé, Amazonas main channel
*Pamphorichthys scalpridens**		Upper Tocantins, lower Tocantins, Teles Pires, Juruena, Tapajós, Amazonas main channel
*Phalloceros leticiae**		Endemic – Araguaia
*Poecilia bifurca***		
*Poecilia caucana***		
*Poecilia branneri***		
Poecilia parae		Lower Xingu, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco
Poecilia picta		Amazonas Estuary, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco
*Poecilia waiapi**		Endemic – Jari
Tomeurus gracilis		Amazonas Estuary, Capim, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
Atheriniformes	**1**	
Atherinopsidae	1	
Odontesthes bonariensis		Mamoré, Paraná-Paraguay
Beloniformes	**9**	
Belonidae	8	
Belonion apodion		Guaporé, middle-lower Madeira, Purus, Japurá, Branco, Trombetas, Amazonas main channel, upper Orinoco
Belonion dibranchodon		Japurá, Negro, upper Orinoco
Potamorrhaphis eigenmanni		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Amazonas main channel, Paraná-Paraguay
Potamorrhaphis guianensis		Araguaia, lower Tocantins, upper Xingu, Tapajós, middle-lower Madeira, Javari, Ucayali, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Potamorrhaphis labiatus**		Juruá, Ucayali, Amazonas main channel
Potamorrhaphis petersi		Negro, Trombetas, lower Orinoco, upper Orinoco, Apure
Pseudotylosurus angusticeps		Lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Branco, Amazonas main channel, Amazonas Estuary, Paraná-Paraguay
Pseudotylosurus microps		Upper Tocantins, Araguaia, lower Tocantins, lower Xingu, middle-lower Madeira, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, Parnaíba, Maroni-Approuague, Coppename-Suriname-Saramacca, Essequibo, lower Orinoco, upper Orinoco, Apure
Hemiramphidae	1	
Hyporhamphus brederi		Amazonas main channel
Synbranchiformes	**3**	
Synbranchidae	3	
*Synbranchus lampreia**		Endemic – Amazonas Estuary
*Synbranchus madeirae**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Juruá

Taxon	Species	Occurrence
*Synbranchus marmoratus**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, Purus, Tefé, Juruá, Ucayali, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, Gurupi-Turiaçu, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure, Maracaibo, Atl. Coastal Drainages of Col. Ven., Cauca-Magdalena-Sinu, Atrato, Paraná-Paraguay
Perciformes	**286**	
Cichlidae	258	
Acarichthys heckelii		Lower Tocantins, lower Xingu, Tapajós, middle-lower Madeira, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Essequibo
Acaronia nassa		Lower Tocantins, upper Xingu, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Jutaí, Ucayali, Marañon-Nanay, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Oiapoque, Corentyne-Demerara, Essequibo
Acaronia vultuosa		Madeira Shield Tributaries, Purus, Negro, Branco, lower Orinoco, upper Orinoco, Apure
Aequidens chimantanus		Japurá, Amazonas main channel, lower Orinoco
Aequidens diadema		Juruá, Ucayali, Putumayo, Negro, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Aequidens epae		Teles Pires, Tapajós, Capim
*Aequidens gerciliae**		Endemic – Madeira Shield Tributaries
*Aequidens mauesanus**		Middle-lower Madeira, Amazonas main channel
Aequidens metae		Putumayo, Japurá, upper Orinoco
*Aequidens michaeli**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
Aequidens pallidus		Middle-lower Madeira, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Capim
*Aequidens patricki**		Endemic – Ucayali
Aequidens plagiozonatus		Guaporé, Paraná-Paraguay
Aequidens potaroensis		Putumayo, Branco, Essequibo
Aequidens rondoni		Juruena, Paraná-Paraguay
Aequidens superomaculatum		Negro, upper Orinoco
Aequidens tetramerus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Javari, Ucayali, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Gurupi-Turiaçu, Capim, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Aequidens tubicen**		Endemic – Trombetas
*Aequidens viridis**		Restricted to Madeira basin (Mamoré, Guaporé)
*Apistogramma acrensis**		Middle-lower Madeira, Purus
Apistogramma agassizii		Lower Tocantins, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Purus, Javari, Ucayali, Marañon-Nanay, Japurá, Trombetas, Amazonas main channel, Capim

Taxon	Species	Occurrence
*Apistogramma aguarico**		Endemic – Napo-Ambyiacu
Apistogramma alacrina		Japurá, upper Orinoco
*Apistogramma allpahuayo**		Endemic – Amazonas main channel
*Apistogramma amoena***		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios)
*Apistogramma angayuara**		Endemic – Trombetas
*Apistogramma arua**		Endemic – Amazonas main channel
*Apistogramma atahualpa**		Endemic – Amazonas main channel
*Apistogramma baenschi**		Endemic – Marañon
*Apistogramma barlowi**		Endemic – Napo-Ambyiacu
*Apistogramma bitaeniata**		Marañon-Nanay, Putumayo, Japurá, Amazonas main channel
Apistogramma brevis		Negro, upper Orinoco
*Apistogramma cacatuoides**		Ucayali, Marañon-Nanay, Amazonas main channel
Apistogramma caetei		Lower Tocantins, Gurupi-Turiaçu, Capim
*Apistogramma cinilabra**		Endemic – Amazonas main channel
Apistogramma commbrae		Mamoré, Paraná-Paraguay
*Apistogramma cruzi**		Napo-Ambyiacu, Putumayo, Japurá
Apistogramma diplotaenia		Negro, Amazonas main channel, upper Orinoco
*Apistogramma eleutheria**		Endemic – Iriri
*Apistogramma elizabethae**		Endemic – Negro
*Apistogramma eremnopyge**		Endemic – Amazonas main channel
*Apistogramma erythrura**		Endemic – Mamoré
*Apistogramma eunotus**		Araguaia, Javari, Ucayali, Marañon-Nanay, Putumayo, Japurá, Amazonas main channel
*Apistogramma flavipedunculata**		Endemic – Iriri
*Apistogramma geisleri**		Endemic – Trombetas
*Apistogramma gephyra**		Lower Xingu, Mamoré, middle-lower Madeira, Japurá, Negro, Branco, Amazonas main channel
*Apistogramma gibbiceps**		Restricted to Negro basin (Negro, Branco)
*Apistogramma hippolytae**		Negro, Branco, Amazonas main channel
*Apistogramma huascar**		Endemic – Marañon
Apistogramma inconspicua		Mamoré, Guaporé, Beni-Madre de Dios, Japurá, Paraná-Paraguay
Apistogramma iniridae		Putumayo, Japurá, Negro, upper Orinoco
*Apistogramma juruensis**		Endemic – Juruá
*Apistogramma kullanderi**		Endemic – Iriri
*Apistogramma linkei**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
*Apistogramma luelingi**		Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
*Apistogramma martini**		Endemic – Marañon
*Apistogramma megastoma**		Endemic – Amazonas main channel
*Apistogramma meinkeni**		Restricted to Negro basin (Negro, Branco)

Taxon Species	Occurrence
*Apistogramma mendezi**	Endemic – Negro
*Apistogramma moae**	Endemic – Juruá
*Apistogramma nijsseni**	Endemic – Ucayali
*Apistogramma norberti**	Endemic – Amazonas main channel
*Apistogramma ortegai**	Endemic – Napo-Ambyiacu
Apistogramma ortmanni	Japurá, Branco, Amazonas main channel, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
*Apistogramma panduro**	Endemic – Amazonas main channel
*Apistogramma pantalone**	Endemic – Marañon
*Apistogramma paucisquamis**	Negro, Amazonas main channel
*Apistogramma paulmuelleri**	Endemic – Amazonas main channel
*Apistogramma payaminonis**	Endemic – Napo-Ambyiacu
*Apistogramma personata**	Endemic – Negro
*Apistogramma pertensis**	Tapajós, Tefé, Japurá, Negro, Trombetas, Jari, Amazonas main channel
*Apistogramma playayacu**	Endemic – Napo-Ambyiacu
*Apistogramma pulchra**	Endemic – Middle-lower Madeira
*Apistogramma regani**	Lower Xingu, Negro, Branco, Amazonas main channel
Apistogramma resticulosa	Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Negro, Amazonas main channel, Araguari-Macari-Amapá
*Apistogramma rositae**	Endemic – Marañon
*Apistogramma rubrolineata**	Restricted to Madeira basin (Beni-Madre de Dios, middle-lower Madeira)
Apistogramma rupununi	Branco, Essequibo
*Apistogramma salpinction**	Endemic – Trombetas
*Apistogramma similis**	Restricted to Madeira basin (Mamoré, Beni-Madre de Dios)
*Apistogramma sororcula**	Endemic – Guaporé
*Apistogramma staecki**	Restricted to Madeira basin (Mamoré, Guaporé, middle-lower Madeira)
Apistogramma steindachneri	Branco, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
*Apistogramma taeniata**	Endemic – Tapajós
Apistogramma trifasciata	Mamoré, Guaporé, Beni-Madre de Dios, Paraná-Paraguay
Apistogramma tucurui	Lower Tocantins, Capim
Apistogramma uaupesi	Negro, upper Orinoco
*Apistogramma urteagai**	Endemic – Beni-Madre de Dios
*Apistogramma wapisana**	Endemic – Branco
*Apistogrammoides pucallpaensis**	Marañon-Nanay, Amazonas main channel
Astronotus crassipinnis	Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Branco, Amazonas main channel, Amazonas Estuary, Paraná-Paraguay
Astronotus ocellatus	Upper Tocantins, Araguaia, lower Tocantins, Tapajós, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, lower Orinoco

Taxon	Species	Occurrence
Biotodoma cupido		Araguaia, lower Tocantins, Teles Pires, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Corentyne-Demerara, Essequibo
Biotodoma wavrini		Japurá, Negro, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Biotoecus dicentrarchus		Negro, lower Orinoco, upper Orinoco
*Biotoecus opercularis**		Middle-lower Madeira, Purus, Negro, Branco, Trombetas, Amazonas main channel
*Bujurquina apoparuana**		Endemic – Ucayali
*Bujurquina cordemadi**		Restricted to Madeira basin (Beni-Madre de Dios, middle-lower Madeira)
*Bujurquina eurhinus**		Restricted to Madeira basin (Beni-Madre de Dios, middle-lower Madeira)
*Bujurquina hophrys**		Endemic – Ucayali
*Bujurquina huallagae**		Marañon-Nanay, Putumayo
*Bujurquina labiosa**		Endemic – Ucayali
Bujurquina mariae		Putumayo, Japurá, Amazonas main channel, lower Orinoco, upper Orinoco
*Bujurquina megalospilus**		Endemic – Ucayali
*Bujurquina moriorum**		Ucayali, Amazonas main channel
*Bujurquina ortegai**		Marañon-Nanay, Putumayo
*Bujurquina pardus**		Endemic – Marañon
*Bujurquina peregrinabunda**		Putumayo, Japurá, Amazonas main channel
*Bujurquina robusta**		Juruá, Ucayali
*Bujurquina syspilus**		Ucayali, Amazonas main channel
*Bujurquina tambopatae**		Endemic – Beni-Madre de Dios
Bujurquina vittata		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Paraná-Paraguay
*Bujurquina zamorensis**		Endemic – Marañon
*Caquetaia myersi**		Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Amazonas main channel
Caquetaia spectabilis		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Capim, Araguari-Macari-Amapá
*Chaetobranchopsis orbicularis**		Lower Tocantins, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Negro, Branco, Amazonas main channel, Amazonas Estuary
Chaetobranchus flavescens		Araguaia, lower Tocantins, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Napo-Ambyiacu, Putumayo, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Oiapoque, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Chaetobranchus semifasciatus**		Middle-lower Madeira, Purus, Tefé, Japurá, Amazonas main channel
*Cichla jariina**		Endemic – Jari
*Cichla kelberi**		Upper Tocantins, Araguaia, lower Tocantins, Amazonas Estuary
*Cichla melaniae**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
*Cichla mirianae**		Upper Xingu, lower Xingu, Teles Pires, Juruena, Jamanxim
Cichla monoculus		Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Ucayali, Napo-Ambyiacu, Putumayo, Negro, Branco, Amazonas main channel, Amazonas Estuary, Araguari-Macari-Amapá, Oiapoque, Coppename-Suriname-Saramacca, Corentyne-Demerara, upper Orinoco

Taxon	Species	Occurrence
*Cichla nigromaculata**		Endemic – Negro
Cichla ocellaris		Branco, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
Cichla orinocensis		Negro, Branco, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Cichla pinima		Lower Tocantins, lower Xingu, Teles Pires, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Amazonas Estuary, Capim
*Cichla piquiti**		Restricted to Tocantins basin (upper Tocantins, Araguaia, lower Tocantins)
*Cichla pleiozona**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Amazonas main channel
Cichla temensis		Negro, Branco, Urubu-Uatumã, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Cichla thyrorus**		Endemic – Trombetas
*Cichla vazzoleri**		Urubu-Uatumã, Trombetas
*Cichlasoma amazonarum**		Upper Tocantins, lower Tocantins, Mamoré, Guaporé, middle-lower Madeira, Juruá, Ucayali, Marañon-Nanay, Putumayo, Amazonas main channel, Amazonas Estuary
*Cichlasoma araguaiense**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu
Cichlasoma bimaculatum		Lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, Branco, Amazonas main channel, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
*Cichlasoma boliviense**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus
Cichlasoma sanctifranciscense		Upper Tocantins, Parnaiba, São Francisco
*Crenicara latruncularium**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios)
Crenicara punctulata		Lower Tocantins, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Branco, Amazonas main channel, Essequibo
Crenicichla acutirostris		Upper Xingu, lower Xingu, Teles Pires, Tapajós, Madeira Shield Tributaries, Branco, Amazonas main channel, Essequibo
*Crenicichla adspersa**		Lower Tocantins, Tapajós, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Urubu-Uatumã, Amazonas main channel
Crenicichla albopunctata		Jari, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara
Crenicichla alta		Putumayo, Japurá, Branco, Trombetas, Amazonas main channel, Essequibo, lower Orinoco, upper Orinoco
*Crenicichla anamiri**		Endemic – lower Xingu
*Crenicichla anthurus**		Ucayali, Marañon-Nanay, Putumayo, Japurá, Branco
*Crenicichla cametana**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu
*Crenicichla chicha**		Endemic – Juruena
*Crenicichla cincta**		Middle-lower Madeira, Madeira Shield Tributaries, Purus, Napo-Ambyiacu, Putumayo, Amazonas main channel, Amazonas Estuary
*Crenicichla compressiceps**		Endemic – lower Tocantins
Crenicichla cyanonotus		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Ucayali, Amazonas main channel, Itapicuru-Mearim, Apure
*Crenicichla cyclostoma**		Endemic – lower Tocantins
*Crenicichla dandara**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
*Crenicichla heckeli**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Trombetas

Taxon	Species	Occurrence
*Crenicichla hemera**		Endemic – Madeira Shield Tributaries
*Crenicichla hummelincki**		Endemic – Trombetas
Crenicichla inpa		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, middle-lower Madeira, Negro, Amazonas main channel, Amazonas Estuary, Capim
*Crenicichla isbrueckeri**		Endemic – Madeira Shield Tributaries
*Crenicichla jegui**		Endemic – lower Tocantins
Crenicichla johanna		Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Tapajós, Jamanxim, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Tefé, Juruá, Ucayali, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Araguari-Macari-Amapá, Oiapoque, Corentyne-Demerara, Essequibo, upper Orinoco
Crenicichla labrina		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Capim, Araguari-Macari-Amapá
Crenicichla lenticulata		Putumayo, Japurá, Negro, Branco, Trombetas, Essequibo, upper Orinoco
Crenicichla lepidota		Araguaia, Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Capim, Paraná-Paraguay
*Crenicichla lucius**		Ucayali, Marañon-Nanay, Napo-Ambyiacu, Amazonas main channel
Crenicichla lugubris		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Guaporé, middle-lower Madeira, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco
*Crenicichla macrophthalma**		Upper Xingu, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Negro, Trombetas, Amazonas main channel
*Crenicichla marmorata**		Lower Tocantins, Iriri, lower Xingu, middle-lower Madeira, Madeira Shield Tributaries, Trombetas, Jari, Amazonas main channel
*Crenicichla monicae**		Endemic – Negro
Crenicichla notophthalmus		Negro, Amazonas main channel, Capim
*Crenicichla pellegrini**		Endemic – Madeira Shield Tributaries
*Crenicichla percna**		Restricted to Xingu basin (upper Xingu, lower Xingu)
*Crenicichla phaiospilus**		Endemic – upper Xingu
Crenicichla ploegi		Juruena, Paraná-Paraguay
*Crenicichla proteus**		Mamoré, Beni-Madre de Dios, Purus, Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Amazonas main channel
*Crenicichla pydanielae**		Endemic – Trombetas
Crenicichla regani		Araguaia, lower Tocantins, Teles Pires, Tapajós, Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Branco, Urubu-Uatumã, Trombetas, Curuá-Paru do Oeste, Jari, Amazonas main channel, Amazonas Estuary, Capim
Crenicichla reticulata		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Juruá, Napo-Ambyiacu, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Gurupi-Turiaçu, Essequibo, upper Orinoco
*Crenicichla rosemariae**		Endemic – upper Xingu
*Crenicichla santosi**		Mamoré, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Amazonas main channel

Taxon	Species	Occurrence
Crenicichla saxatilis		Upper Xingu, lower Xingu, Teles Pires, Putumayo, Japurá, Branco, Amazonas main channel, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
Crenicichla sedentaria		Juruá, Ucayali, Marañon-Nanay, Napo-Ambyiacu, upper Orinoco
*Crenicichla semicincta**		Teles Pires, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá
*Crenicichla stocki**		Endemic – lower Tocantins
Crenicichla strigata		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Capim, Essequibo
*Crenicichla tigrina**		Endemic – Trombetas
*Crenicichla urosema**		Restricted to Tapajós basin (Tapajós, Jamanxim)
*Crenicichla virgatula**		Restricted to Negro basin (Negro, Branco)
Crenicichla vittata		Mamoré, Paraná-Paraguay
Crenicichla wallacii		Lower Tocantins, Negro, Branco, Essequibo, lower Orinoco, upper Orinoco
Dicrossus filamentosus		Negro, Branco, lower Orinoco, upper Orinoco
*Dicrossus foirni**		Endemic – Negro
*Dicrossus maculatus**		Middle-lower Madeira, Branco, Amazonas main channel
*Dicrossus warzeli**		Restricted to Tapajós basin (Teles Pires, Tapajós)
Geophagus abalios		Negro, lower Orinoco, upper Orinoco, Apure
Geophagus altifrons		Upper Tocantins, lower Tocantins, upper Xingu, Iriri, lower Xingu, Tapajós, middle-lower Madeira, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Capim
*Geophagus argyrostictus**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
Geophagus dicrozoster		Negro, lower Orinoco, upper Orinoco, Apure
*Geophagus megasema**		Guaporé, Beni-Madre de Dios, middle-lower Madeira, Japurá
*Geophagus mirabilis**		Endemic – Madeira Shield Tributaries
*Geophagus neambi**		Upper Tocantins, Araguaia, lower Tocantins, lower Xingu, Teles Pires, Tapajós
*Geophagus proximus**		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Ucayali, Japurá, Negro, Branco, Trombetas, Amazonas main channel
Geophagus surinamensis		Putumayo, Japurá, Branco, Maroni-Approuague, Coppename-Suriname-Saramacca, Essequibo
*Geophagus sveni**		Restricted to Tocantins basin (upper Tocantins, Araguaia)
Geophagus winemilleri		Japurá, Negro, upper Orinoco
Guianacara dacrya		Branco, Essequibo
Guianacara sphenozona		Branco, Corentyne-Demerara, Essequibo
Gymnogeophagus balzanii		Guaporé, Paraná-Paraguay
*Heroina isonycterina**		Marañon-Nanay, Napo-Ambyiacu, Japurá
Heros efasciatus		Lower Tocantins, upper Xingu, lower Xingu, Tapajós, Madeira Shield Tributaries, Tefé, Juruá, Ucayali, Urubu-Uatumã, Trombetas, Amazonas main channel, Oiapoque
Heros notatus		Upper Tocantins, Araguaia, Negro, Branco, Amazonas main channel, Capim, Araguari-Macari-Amapá, Maroni-Approuague, Corentyne-Demerara, Essequibo

Taxon	Species	Occurrence
Heros severus		Negro, upper Orinoco
*Heros spurius**		Restricted to Madeira basin (Mamoré, Guaporé, middle-lower Madeira)
Hoplarchus psittacus		Middle-lower Madeira, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Hypselecara coryphaenoides		Tapajós, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
Hypselecara temporalis		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Tapajós, middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Ucayali, Putumayo, Japurá, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Capim, Oiapoque
*Ivanacara adoketa**		Endemic – Negro
*Krobia xinguensis**		Restricted to Xingu basin (upper Xingu, lower Xingu)
Laetacara araguaiae		Upper Tocantins, Araguaia, upper Xingu, Teles Pires, Tapajós, Paraná-Paraguay
*Laetacara curviceps**		Trombetas, Amazonas main channel, Capim
*Laetacara flavilabris**		Juruá, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Amazonas main channel
Laetacara fulvipinnis		Negro, upper Orinoco
*Laetacara thayeri**		Middle-lower Madeira, Purus, Coari-Urucu, Tefé, Marañon-Nanay, Negro, Amazonas main channel
Mesonauta acora		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, lower Xingu, Capim
Mesonauta festivus		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Putumayo, Japurá, Negro, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary, Araguari-Macari-Amapá, Essequibo, upper Orinoco, Paraná-Paraguay
Mesonauta guyanae		Lower Tocantins, Tapajós, middle-lower Madeira, Negro, Branco, Amazonas main channel, Amazonas Estuary, Capim, Oiapoque, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
Mesonauta insignis		Guaporé, Beni-Madre de Dios, middle-lower Madeira, Putumayo, Negro, Branco, Urubu-Uatumã, Amazonas main channel, lower Orinoco, upper Orinoco, Apure
*Mesonauta mirificus**		Ucayali, Putumayo, Japurá, Amazonas main channel
*Mikrogeophagus altispinosus**		Restricted to Madeira basin (Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira)
Pterophyllum altum		Negro, upper Orinoco
Pterophyllum leopoldi		Lower Tocantins, Putumayo, Negro, Branco, Amazonas main channel, Amazonas Estuary, Gurupi-Turiaçu, Essequibo
Pterophyllum scalare		Araguaia, lower Tocantins, lower Xingu, middle-lower Madeira, Purus, Javari, Ucayali, Putumayo, Japurá, Branco, Jari, Amazonas main channel, Amazonas Estuary, Capim, Oiapoque, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo
*Retroculus acherontos**		Endemic – upper Tocantins
Retroculus lapidifer		Upper Tocantins, Araguaia, lower Tocantins, Capim
*Retroculus xinguensis**		Upper Xingu, Iriri, lower Xingu, Tapajós, Jamanxim
*Rondonacara hoehnei**		Endemic – Araguaia
*Satanoperca acuticeps**		Beni-Madre de Dios, middle-lower Madeira, Purus, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel
*Satanoperca curupira**		Endemic – Madeira Shield Tributaries
Satanoperca daemon		Putumayo, Japurá, Negro, lower Orinoco, upper Orinoco, Apure

Taxon	Species	Occurrence
Satanoperca jurupari		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Paru, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Capim, Araguari-Macari-Amapá, Oiapoque, Essequibo, upper Orinoco
Satanoperca leucosticta		Middle-lower Madeira, Madeira Shield Tributaries, Purus, Juruá, Branco, Urubu-Uatumã, Amazonas main channel, Corentyne-Demerara, Essequibo
*Satanoperca lilith**		Middle-lower Madeira, Madeira Shield Tributaries, Negro, Branco, Trombetas, Amazonas main channel
Satanoperca pappaterra		Mamoré, Guaporé, Beni-Madre de Dios, Japurá, Amazonas main channel, Paraná-Paraguay
Symphysodon aequifasciatus		Upper Xingu, lower Xingu, Tapajós, Coari-Urucu, Tefé, Putumayo, Japurá, Negro, Trombetas, Amazonas main channel, Amazonas Estuary, Capim
*Symphysodon discus**		Middle-lower Madeira, Negro, Trombetas
*Symphysodon haraldi**		Middle-lower Madeira, Purus, Amazonas main channel
*Symphysodon tarzoo**		Middle-lower Madeira, Tefé, Juruá, Jutaí, Amazonas main channel
*Taeniacara candidi**		Lower Xingu, Tapajós, middle-lower Madeira, Negro, Branco, Trombetas, Amazonas main channel
*Tahuantinsuyoa chipi**		Endemic – Ucayali
*Tahuantinsuyoa macantzatza**		Endemic – Ucayali
*Teleocichla centisquama**		Restricted to Xingu basin (Iriri, lower Xingu)
*Teleocichla centrarchus**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
*Teleocichla cinderella**		Restricted to Tocantins basin (Araguaia, lower Tocantins)
*Teleocichla gephyrogramma**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
*Teleocichla monogramma**		Restricted to Xingu basin (upper Xingu, lower Xingu)
*Teleocichla preta**		Restricted to Xingu basin (upper Xingu, Iriri, lower Xingu)
*Teleocichla prionogenys**		Iriri, Tapajós, Jamanxim
*Teleocichla proselytus**		Upper Xingu, Tapajós
*Teleocichla wajapi**		Endemic – Jari
*Uaru amphiacanthoides**		Lower Xingu, Tapajós, middle-lower Madeira, Purus, Tefé, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Amazonas Estuary
Eleotridae	9	
*Dormitator maculatus**		Lower Tocantins, Amazonas Estuary
Eleotris pisonis		Lower Tocantins, lower Xingu, Amazonas main channel, Amazonas Estuary, Maroni-Approuague, Coppename-Suriname-Saramacca, lower Orinoco
*Leptophilypnion fittkaui**		Endemic – Negro
*Leptophilypnion pusillus**		Endemic – Tapajós
*Microphilypnus acangaquara**		Endemic – Tapajós
*Microphilypnus hypolyrasimeion**		Endemic – Negro
Microphilypnus macrostoma		Negro, Amazonas main channel, lower Orinoco, upper Orinoco
*Microphilypnus tapajosensis**		Endemic – Tapajós
Microphilypnus ternetzi		Lower Tocantins, Teles Pires, Tapajós, Mamoré, middle-lower Madeira, Madeira Shield Tributaries, Purus, Japurá, Negro, Branco, Amazonas main channel, Capim, lower Orinoco, upper Orinoco

Taxon	Species	Occurrence
Gobiidae	1	
Awaous flavus		Lower Tocantins, lower Xingu, Maroni-Approuague, Corentyne-Demerara, Essequibo, lower Orinoco, Cauca-Magdalena-Sinu, Atrato
Polycentridae	3	
Monocirrhus polyacanthus		Lower Xingu, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Coari-Urucu, Tefé, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Capim, lower Orinoco, upper Orinoco, Apure
*Polycentrus jundia**		Endemic – Negro
Polycentrus schomburgkii		Jari, Amazonas Estuary, Capim, Araguari-Macari-Amapá, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, Apure
Sciaenidae	15	
Pachypops fourcroi		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Guaporé, middle-lower Madeira, Madeira Shield Tributaries, Juruá, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Itapicuru-Mearim, Araguari-Macari-Amapá, Oiapoque, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure
*Pachypops pigmaeus**		Middle-lower Madeira, Madeira Shield Tributaries, Branco, Trombetas
Pachypops trifilis		Mamoré, Guaporé, Purus, Tefé, Juruá, Japurá, Negro, Urubu-Uatumã, Trombetas, Amazonas main channel, Maroni-Approuague, Essequibo
*Pachyurus calhamazon**		Branco, Trombetas
Pachyurus gabrielensis		Purus, Ucayali, Marañon-Nanay, Negro, Branco, upper Orinoco
*Pachyurus junki**		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Jamanxim, Madeira Shield Tributaries, Negro, Branco, Amazonas main channel
*Pachyurus paucirastrus**		Upper Tocantins, Araguaia, lower Tocantins, Mamoré, middle-lower Madeira, Trombetas, Amazonas main channel
Pachyurus schomburgkii		Araguaia, lower Tocantins, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Juruá, Putumayo, Japurá, Negro, Branco, Urubu-Uatumã, Trombetas, Jari, Amazonas Estuary, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco, upper Orinoco
*Pachyurus stewarti**		Beni-Madre de Dios, Purus, Napo-Ambyiacu
Petilipinnis grunniens		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, middle-lower Madeira, Madeira Shield Tributaries, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel, Essequibo
Plagioscion auratus		Lower Tocantins, Amazonas main channel, Capim, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco
Plagioscion magdalenae		Lower Tocantins, Iriri, lower Xingu, Trombetas, Amazonas main channel, Amazonas Estuary, Capim, Araguari-Macari-Amapá, Cauca-Magdalena-Sinu
*Plagioscion montei**		Middle-lower Madeira, Purus, Juruá, Ucayali, Negro, Branco, Urubu-Uatumã, Trombetas, Amazonas main channel
Plagioscion squamosissimus		Upper Tocantins, Araguaia, lower Tocantins, upper Xingu, Iriri, lower Xingu, Teles Pires, Juruena, Tapajós, Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Madeira Shield Tributaries, Purus, Tefé, Juruá, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Parnaíba, Itapicuru-Mearim, Capim, Araguari-Macari-Amapá, Maroni-Approuague, Coppename-Suriname-Saramacca, Corentyne-Demerara, Essequibo, lower Orinoco, upper Orinoco, Apure

Taxon	Species	Occurrence
Plagioscion surinamensis		Trombetas, Essequibo, Cauca-Magdalena-Sinu
Pleuronectiformes	**9**	
Achiridae	9	
*Achirus achirus**		Lower Tocantins
*Apionichthys asphyxiatus**		Araguaia, Amazonas main channel
Apionichthys dumerili		Lower Tocantins, Japurá, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Itapicuru-Mearim, Coppename-Suriname-Saramacca, Corentyne-Demerara, lower Orinoco
Apionichthys menezesi		Napo-Ambyiacu, Negro, lower Orinoco
*Apionichthys nattereri**		Mamoré, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Javari, Marañon-Nanay, Napo-Ambyiacu, Negro, Amazonas main channel
*Apionichthys rosai**		Middle-lower Madeira, Ucayali, Amazonas main channel, Amazonas Estuary
*Apionichthys seripierriae**		Middle-lower Madeira, Napo-Ambyiacu, Branco, Amazonas main channel
Hypoclinemus mentalis		Araguaia, lower Tocantins, upper Xingu, lower Xingu, Teles Pires, Tapajós, Guaporé, Beni-Madre de Dios, middle-lower Madeira, Purus, Juruá, Javari, Ucayali, Marañon-Nanay, Napo-Ambyiacu, Putumayo, Japurá, Negro, Branco, Trombetas, Jari, Amazonas main channel, Amazonas Estuary, Essequibo, lower Orinoco, upper Orinoco
Soleonasus finis		Mamoré, middle-lower Madeira, Purus, Juruá, Ucayali, Marañon-Nanay, Branco, Amazonas main channel, Essequibo
Tetraodontiformes	**2**	
Tetraodontidae	2	
Colomesus asellus		Araguaia, lower Tocantins, upper Xingu, lower Xingu, middle-lower Madeira, Napo-Ambyiacu, Putumayo, Japurá, Branco, Trombetas, Amazonas main channel, Essequibo, lower Orinoco
*Colomesus tocantinensis**		Lower Tocantins, Teles Pires
Ceratodontiformes	**1**	
Lepidosirenidae	1	
Lepidosiren paradoxa		Mamoré, Guaporé, Beni-Madre de Dios, Amazonas main channel, Amazonas Estuary, upper Orinoco, Paraná-Paraguay

APPENDIX 2

Statistical Test for Species with Distribution Maps

H_0: The species is randomly distributed. H_1: The species is not randomly distributed. $X^2 = \Sigma [(O - E)^2 / E]$, where: E is the expected frequency (species can occur inside or outside of the defined limits of the distribution pattern. Thus, E is the number of records of a species divided by 2 possibilities [inside or outside]); andO is the Observed frequency (observed number of records of the species inside the defined limits of the distribution pattern). Degrees of freedom (2 - 1 =1). Conventionally accepted significance level of 0.05 (Chi square distribution table 3.841).

Test for species with "Broadly distributed lineages"

A, *Hoplias malabaricus*, 249 records

Expected inside: 124.5; observed inside: 249; expected outside: 124.5; observed outside: 0; X^2 = 249. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Erythrinus erythrinus*, 41 records

Expected inside: 20.5; observed inside: 41; expected outside: 20.5; observed outside: 0; X^2 = 41. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Hoplerythrinus unitaeniatus*, 95 records

Expected inside: 47.5; Observed inside: 95; Expected outside: 47.5; Observed outside: 0; X^2 = 95. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

D, *Synbranchus marmoratus*, 144

Expected inside: 72; observed inside: 144; expected outside: 72; observed outside: 0; X^2 = 144. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

E, *Callichthys callitchthys*, 110 records

Expected inside: 55; observed inside: 109; expected outside: 55; observed outside: 1; X^2 = 106,03. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "Amazon Core" distribution

A, *Boullengerella* spp., 176 records

Expected inside: 88; observed inside: 176; expected outside: 88; observed outside: 0; X^2 = 176. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Moenkhausia collettii*, 113 records

Expected inside: 56.5; observed inside: 113; expected outside: 56.5; observed outside: 0; X^2 = 113. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Moenkhausia oligolepis*, 104 records

Expected inside: 52; observed inside: 104; expected outside: 52; observed outside: 0; X^2 = 104. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "Amazon and Orinoco Lowlands" distribution

A, *Moenkhausia lepidura*, 51 records

Expected inside: 25.5; observed inside: 51; expected outside: 25.5; observed outside: 0; X^2 = 51. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Potamorhina altamazonica*, 29 records

Expected inside: 14.5; observed inside: 29; expected outside: 14.5; observed outside: 0; X^2 = 29. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Vandellia cirrhosa*, 75 records

Expected inside: 37.5; observed inside: 74; expected outside: 37.5; observed outside: 1; X^2 = 71. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "Amazon and Paraguay Lowlands" distribution

A, *Hemigrammus lunatus*, 21 records

Expected inside: 10.5; observed inside: 21; expected outside: 10.5; observed outside: 0; X^2 = 21. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Epapterus dispilurus*, 12 records

Expected inside: 6; observed inside: 12; expected outside: 6; observed outside: 0; $X^2 = 12$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Mesonauta festivus*, 33 records

Expected inside: 16.5; observed inside: 32; expected outside: 16.5; observed outside: 1; $X^2 = 29.12$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "Amazonas-Paraguay-Orinoco Lowland" distribution

A, *Rhaphiodon vulpinus*, 152 records

Expected inside: 76; observed inside: 143; expected outside: 76; observed outside: 9; $X^2 = 118.13$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Sorubim lima*, 40 records

Expected inside: 20; Observed inside: 39; Expected outside: 20; Observed outside: 1; $X^2 = 36.1$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Hypophthalmus oremaculatus*, 39 records

Expected inside: 19.5; Observed inside: 38; Expected outside: 19.5; Observed outside: 1; $X^2 = 35.1$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "Amazonas-Guyana-Orinoco Lowland" distribution

A, *Crenuchus* spp., 44 records

Expected inside: 22; observed inside: 44; expected outside: 22; observed outside: 0; $X^2 = 44$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Mesonauta* spp., 64 records

Expected inside: 32; observed inside: 55; expected outside: 32; observed outside: 9; $X^2 = 33$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Hemigrammus unilineatus*, 14 records

Expected inside: 7; observed inside: 14; expected outside: 7; observed outside: 0; $X^2 = 14$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

D, *Hemigrammus ocellifer*, 36 records

Expected inside: 18; observed inside: 36; expected outside: 18; observed outside: 0; $X^2 = 36$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "Guyana Mangrove Province" distribution

A, *Curimata cyprinoides*, 19 records

Expected inside: 9.5; observed inside: 19; expected outside: 9.5; observed outside: 0; $X^2 = 19$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Cyphocharax helleri*, 14 records

Expected inside: 7; observed inside: 14; expected outside: 7; observed outside: 0; $X^2 = 14$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Polycentrus schomburgkii*, 8 records

Expected inside: 4; observed inside: 8; expected outside: 4; observed outside: 0; $X^2 = 8$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "Eastern Amazon" distribution

A, *Synaptolaemus latofasciatus*, 12 records

Expected inside: 6; observed inside: 12; expected outside: 6; observed outside: 0; $X^2 = 12$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Aphanothorolus emarginatus*, 46 records

Expected inside: 23; observed inside: 42; expected outside: 23; observed outside: 4; $X^2 = 28$. $X^2 > 3.841$, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Pachyurus junki*, 12 records

Expected inside: 6; observed inside: 12; expected outside: 6; observed outside: 0; $X^2 = 12$. $X^2 > 3.841$,

rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "Amazon-core uplands" distribution

A, *Cetopsidium* spp., 41 records

Expected inside: 20.5; observed inside: 32; expected outside: 20.5; observed outside: 9; X^2 = 12.9. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Hemigrammus ora*, 16 records

Expected inside: 8; observed inside: 16; expected outside: 8; observed outside: 0; X^2 = 16. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Hoplias aimara*, 41 records

Expected inside: 20.5; observed inside: 41; expected outside: 20.5; observed outside: 0; X^2 = 41. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "Amazonian uplands" distribution

A, *Sartor* spp., 4 records

Expected inside: 2; observed inside: 4; expected outside: 2; observed outside: 0; X^2 = 4. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Teleocichla* spp., 24 records

Expected inside: 12; observed inside: 24; expected outside: 12; observed outside: 0; X^2 = 24. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Tocantinsia piresi*, 11 records

Expected inside: 5.5; observed inside: 11; expected outside: 5.5; observed outside: 0; X^2 = 11. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "Guyana Shield" distribution

A, *Pseudancistrus brevispinis*, 18 records

Expected inside: 9; observed inside: 18; expected outside: 9; observed outside: 0; X^2 = 18. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "Longitudinal correspondence among Amazonian Shield versants" distribution

A, *Sartor* gr. *elongatus*, 4 records

Expected inside: 2; observed inside: 4; expected outside: 2; observed outside: 0; X^2 = 4. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Bryconexodon* spp., 14 records

Expected inside: 7; observed inside: 14; expected outside: 7; observed outside: 0; X^2 = 14. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Bivibranchia velox*, 18 records

Expected inside: 9; observed inside: 18; expected outside: 9; observed outside: 0; X^2 = 18. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "Brazilian Shield" distribution

A, *Caiapobrycon* spp., 18 records

Expected inside: 9; observed inside: 18; expected outside: 9; observed outside: 0; X^2 = 18. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Jupiaba apenima*, 28 records

Expected inside: 14; observed inside: 28; expected outside: 14; observed outside: 0; X^2 = 28. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Moenkhausia* gr. *pankilopteryx/pirauba*, 19 records

Expected inside: 9.5; observed inside: 19; expected outside: 9.5; observed outside: 0; X^2 = 19. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for "cis-Andean foothills" distribution

A, *Astyanacinus* spp., 23 records

Expected inside: 11.5; observed inside: 23; expected outside: 11.5; observed outside: 0; X^2 = 23. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

B, *Leporinus striatus*, 71 records

Expected inside: 35.5; observed inside: 50; expected outside: 35.5; observed outside: 21; X^2 = 11.8. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

C, *Steindachnerina dobula*, 25 records

Expected inside: 12.5; observed inside: 25; expected outside: 12.5; observed outside: 0; X^2 = 25. X^2 >3.841, rejects the null hypothesis, i.e., the species is not randomly distributed.

Test for type of the water affecting distribution

H_o: The distribution of the species is not affected by the type of the water. H_1: The distribution of the species is affected by the type of the water. $X^2 = \Sigma [(O - E)^2 / E]$, where: E is the expected frequency (species can occur in black-, white- or clear water). Thus, E is the number of records of a species divided by 3 possibilities (black-, white- or clear water); O is the observed frequency (number of records of the species observed in a determined water type). Degrees of freedom (3 - 1 = 2). Conventionally accepted significance level of 0.05 (Chi square distribution table 5.991).

Test for "Amazon-only Lowland" distribution

A, *Cetopsis candiru*, 9 records

Expected black: 3; observed black: 0; expected white: 3; observed white: 8; expected clear: 3; observed clear: 1; X^2 = 12.6. X^2 > 5.991, rejects the null hypothesis, i.e., the distribution of the species is affected by the type of the water.

B, *Curimatella meyeri*, 38 records

Expected black: 12; observed black: 2; expected white: 12; observed white: 33; expected clear: 12; observed clear: 3; X^2 = 51.8. X^2 > 5.991, rejects the null hypothesis, i.e., the distribution of the species is affected by the type of the water.

C, *Adontosternarchus balaenops*, 21 records

Expected black: 7; observed black: 0; expected white: 7; observed white: 20; expected clear: 7; observed clear: 1; X^2 = 21.16. X^2 > 5.991, rejects the null hypothesis, i.e., the distribution of the species is affected by the type of the water.

Test for "Central Blackwater Amazon" distribution

A, *Biotoecus* spp., 19 records

Expected black: 6.33; observed black: 14; expected white: 6.33; observed white: 5; expected clear: 6.33; observed clear: 0; X^2 = 8.38. X^2 > 5.991, rejects the null hypothesis, i.e., the distribution of the species is affected by the type of the water.

B, *Dicrossus* spp., 25 records (collecting points in Orinoco were not considered for the water type classification)

Expected black: 8.33; observed black: 16; expected white: 8.33; observed white: 3; expected clear: 8.33; observed clear: 6; X^2 = 7.72. X^2 > 5.991, rejects the null hypothesis, i.e., the distribution of the species is affected by the type of the water.

C, *Hemigrammus analis*, 18 records (collecting points in Orinoco were not considered for the water type classification)

Expected black: 6; observed black: 13; expected white: 6; observed white: 1; expected clear: 6; observed clear: 4; X^2 = 6.5. X^2 >5.991, rejects the null hypothesis, i.e., the distribution of the species is affected by the type of the water.

D, *Hemigrammus coeruleus*, 15 records

Expected black: 5; observed black: 12; expected white: 5; observed white: 2; expected clear: 5; observed clear: 1; X^2 = 6.16. X^2 > 5.991, rejects the null hypothesis, i.e., the distribution of the species is affected by the type of the water.

E, *Hemigrammus stictus*, 18 records (collecting points in Orinoco were not considered for the water type classification)

Expected black: 6; observed black: 16; expected white: 6; observed white: 3; expected clear: 6; observed clear: 6; X^2 = 10.16. X^2 > 5.991, rejects the null hypothesis, i.e., the distribution of the species is affected by the type of the water.

Scientific Publications of the American Museum of Natural History

American Museum Novitates
Bulletin of the American Museum of Natural History
Anthropological Papers of the American Museum of Natural History

Submission procedures can be found at http://research.amnh.org/scipubs

All issues of *Novitates* and *Bulletin* are available on the web (http://digitallibrary.amnh.org/dspace). Order printed copies on the web from:
http://shop.amnh.org/a701/shop-by-category/books/scientific-publications.html

or via standard mail from:
American Museum of Natural History—Scientific Publications
Central Park West at 79th Street
New York, NY 10024

♾ This paper meets the requirements of ANSI/NISO Z39.48-1992 (permanence of paper).

On the cover: Distribution patterns of Amazonian fishes: (upper left) Guiana Mangrove Province; (upper right) Amazon-only Lowland; (lower left) Cis-Andean Foothills; (lower right) Eastern Amazon.