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A new genus and species of bristle worm from Beibu Gulf, South China Sea (Annelida, Polychaeta, Amphinomidae)

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Abstract

Alleurythoe, a new genus with type species *Alleurythoe tenuichaeta* **sp. n.**, is described and illustrated based on material from Beibu Gulf, northwestern South China Sea. The new genus is distinguished from all genera within Amphinomidae by a combination of characters: caruncle trilobed, conspicuous, attached to and confluent with the posterior prostomial lobe, which is free from the body wall and has 6—7 folds on each of the lateral lobes; both noto- and neuropodial aciculae are spinose, extending beyond the chaetal lobe. *Alleurythoe tenuichaeta* **sp. n.** is characterized by having branchiae present from chaetiger 4 and a bifurcate neurochaetae capillary. A key distinguishing the genera of Amphinominae is provided.

Keywords

Polychaeta, Amphinomidae, *Alleurythoe*, new genus, new species, South China Sea

Introduction

The Amphinomidae, commonly known as fireworms, are typically associated with rocky and soft bottoms in shallow tropical and subtropical waters (Fauchald 1977; Kudenov 1995). It has been reported that amphinomid chaetae are hollow and filled

with complanine, a trimethylamine compound which is transmitted to predators and causes intense irritation through highly brittle, calcareous harpoon notochaetae (Arias 2013; Day 1967; Kudenov 1993; Penner 1970). By contrast, Tilic et al. (2017) showed that chaetae of *Eurythoe complanata* (Pallas, 1766) are not hollow; the skin reactions are upon direct contact injury rather than from venom injections. Amphinomid species have either elongate or fusiform bodies, with caruncles generally extending posteriorly over several anterior chaetigers, branchiae ranging from bipinnate to tufts comprised of digitiform rami, with one dorsal and ventral cirrus per parapodium (Fauchald 1977; Gathof 1984; Kudenov 1995).

According to recent phylogenetic studies (Borda et al. 2012, 2015) Amphinomidae can be subdivided into two subfamilies based on the presence (Archinominae Kudenov, 1991) or absence (Amphinominae Lamarck, 1818) of accessory dorsal cirrus. The subfamily Amphinominae currently includes *Amphinome* Bruguière, 1789, *Cryptonome* Borda, Kudenov, Bienhold & Rouse, 2012, *Eurythoe* Kinberg, 1857, *Hermodice*, Kinberg, 1857, *Hipponoe* Audouin & Milne Edwards, 1830, *Paramphinome* Sars, 1869, and *Pareurythoe* Gustafson, 1930; *Benthoscolex* Horst, 1912, *Branchamphinome* Hartman, 1967, *Linopherus* Quatrefages, 1866, and *Pherecardia* Horst, 1886 are provisionally included.

The purpose of this paper is to describe a new genus and species of Amphinominae based on specimens deposited in the Marine Biological Museum of the Chinese Academy of Sciences. A key distinguishing the genera of the Amphinominae, modified from Borda (2012), is provided.

Materials and methods

Specimens examined in present paper are deposited in the Marine Biological Museum of the Chinese Academy of Sciences (**MBMCAS**) in the Institute of Oceanology (**IOCAS**), preserved in 75% ethanol solution. A Zeiss Stemi 2000-C stereomicroscope with an AxioCam MRc 5 digital camera was used for observations and drawing.

Systematics

Family Amphinomidae Lamarck, 1818
Subfamily Amphinominae Lamarck, 1818

Genus *Alleurythoe* gen. n.

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Type species. *Alleurythoe tenuichaeta* sp. n.

Diagnosis. Body elongate, quadrangular. Caruncle trilobed, attached to and confluent with posterior prostomial lobe, free from body wall, median lobe broadly sinusoidal,

each lateral lobe with 6-7 folds, supported by a basal plate. Branchiae present from chaetiger 4, dendritically branched. Bifurcate neurochaetae capillary. Both noto- and neuropodial aciculae spinose.

Etymology. The generic name is a combination of the prefix *allo-* (meaning "other" or "alternative" in Greek) and the generic name *Eurythoe*. The new genus is assigned to the subfamily Amphinominae and most similar to *Eurythoe* in morphology. Gender: feminine.

Remarks. *Alleurythoe* gen. n. is assigned to the subfamily Amphinominae Lamarck, 1818 because of the absence of accessory dorsal cirri, and justified as a new genus by the nature of its caruncle (Yáñez-Rivera 2011). The new genus is anatomically similar to *Notopygos* Grube, 1855 and *Chloeia* Lamarck, 1818 in the shape of caruncle which is trilobed and essentially supported by a basal plate. However, in contrast to *Alleurythoe* gen. n., the caruncle in the latter two genera has an elevated median keel with several bilateral folds, and it is usually fused to the body wall on chaetigers 1-2 and free thereafter. In the new genus, median keel of caruncle is broadly sinusoidal, thickened, lacks bilateral folds, and is attached to, and confluent with the posterior prostomial lobe, and free from the body wall. In addition, *Alleurythoe* differs from most other amphinomids in having spinous rather than hastate aciculae, bifurcate neurochaetae capillary, while other amphinomids with heftier bifurcate neurochaetae.

Alleurythoe gen. n. is superficially similar to *Eurythoe* Kinberg, 1857 in the shape of caruncle, which in both genera consists of a flattened, pronounced median keel and folded lateral lobes; however, the caruncle of *Eurythoe* Kinberg, 1857 is fused to the body wall for most of its length, the median keel overlaps the lateral lobes, which are scalloped on each side and lack a basal plate (Bindra 1927; Borda 2012; Day 1967). Further, in the new genus, the neurochaetae are capillary (non-spurred or spurred), while the short, thick bifurcate neurochaetae, typical of *Eurythoe* Kinberg, 1857, are absent. An identification key to the genera of Amphinominae modified from Borda (2012) is provided below.

***Alleurythoe tenuichaeta* sp. n.**

http://zoobank.org/6BD0D01F-5705-433A-8ABE-250DA5B6D64B

Figs 1–2

Material examined. Holotype, MBM200146, Beibu Gulf, 20°15'N, 109°15'E, 38 meters, mud, coll. Ruiping Sun, 27 August 1962. Paratype: MBM010006, Beibu Gulf, 19°30'N, 108°30'E, 66 meters, mud, coll. Zhengang Fan, 14 May 1960.

Measurements. Holotype incomplete, with anterior fragment and posterior fragment, without posterior end. Anterior fragment with 62 chaetigers, 71 mm long, and 10 mm maximum width, posterior fragment with 50 chaetigers, 60 mm long. Paratype complete, broken into two fragments. Anterior fragment with 60 chaetigers, 75 mm long, and 8 mm maximum width, posterior fragment with 61 chaetigers, 57 mm long.

Diagnosis. Body elongate, quadrangular. Caruncle trilobed, conspicuous, attached to and confluent with posterior prostomial lobe, free from body wall, median lobe

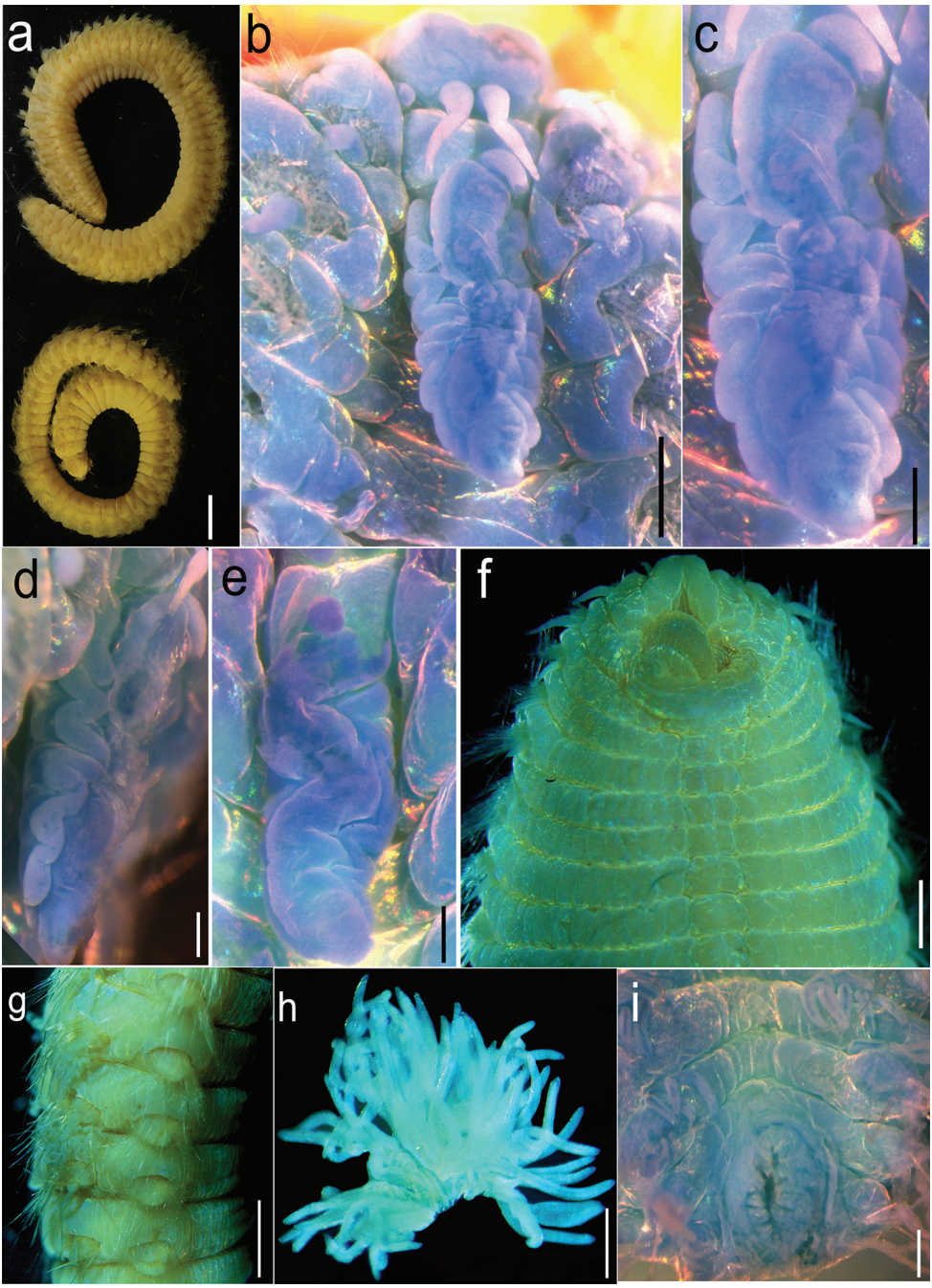

Figure 1. *Alleurythoe tenuichaeta* gen. n. & sp. n., **a** Entire animal in lateral view **b** Prostomium and caruncle, dorsal view **c** Caruncle, dorsal view **d** Caruncle, lateral view. Caruncle, dorsal view **f** Anterior chaetigers, ventral view **g** Parapodia of middle chaetigers, lateral view **h** Branchia of posterior chaetiger **i** pygidium, dorsal view. **a–d, f–i** holotype **e** paratype. Scale bars **a** 0.5 cm; **b** 0.5mm, **c** 0.25 mm; **d–e, i** 0.2 mm; **f** 1 mm; **g** 2 mm; **h** 0.5 mm.

broadly sinusoidal, each lateral lobe with 6-7 folds, supported by a basal plate. Parapodia biramous, with thickened collars encompassing noto- and neuropodial fascicular lobes; chaetiger 2 first complete anteriormost annular ring. Branchiae present from chaetiger 4, continuing almost to end of body, dendritically branched. Notochaetae coarser and shorter than neurochaetae, include harpoon chaetae and capillaries; barbs of harpoon chaetae on anteriormost chaetigers absent to few in number, better developed in following chaetigers. Bifurcate neurochaetae capillary.

Description. Type specimens preserved alcohol pale, without pigmentation. Body quadrangular in cross section, middle region enlarged, tapering posteriorly (Fig. 1a).

Prostomium rectangular, divided into two parts by transverse groove. Anterior lobe prominent, slightly bilobed anteriorly, with two palps and two lateral antennae, palps on ventrolateral part (Fig. 2a, b), lateral antennae subulate, emerging on posterior edge of anterior lobe, similar in shape and size to palps. Posterior lobe rectangular, slightly smaller than anterior one, with median antenna, digitiform, emerging in front of caruncle, short, extending back only to first chaetiger (Figs 1b; 2a). Two pairs of eyes present. Buccal opening occupying two chaetigers (Figs 1f; 2b). Caruncle trilobed, conspicuous, about 2 times as long as prostomium, attached to and confluent with posterior prostomial lobe, free from body wall, extremity tapering, extending back to middle of fourth chaetiger, median keel broadly sinusoidal, lateral lobes plicate each with approximately 6-7 folds (Figs 1b-e; 2a), located slightly behind posterior prostomial lobe, supported by a basal plate. Pharynx unarmed, sac-like (Figs 1f; 2b).

All parapodia biramous, with thickened collars encompassing noto- and neuropodial fascicular lobes. Chaetiger 1 greatly reduced, incomplete dorsally and ventrally. Chaetiger 2 surrounding mouth posteriorly, represents first complete segmental ring (Figs 1f; 2b), with distinctly separated notopodia and neuropodia (Figs 1g, 2c); dorsal and ventral cirri conical and digitiform, respectively, both with stout basal cirrophores and slender distal cirrostyles; cirri of anterior 2 chaetigers longer than those of following chaetigers.

Branchiae present from chaetiger 4, dendritically branched, filaments densely ciliated (Figs 1h, 2a). First branchia with eight terminal filaments, best developed branchiae with 43-46 terminal filaments in 21-53 chaetigers, reducing posteriorly to four or five filaments, the last three chaetigers without branchiae.

Notochaetae coarser and shorter than neurochaetae. Notochaetae of three kinds: simple chaetae (harpoon chaetae without barbs, Fig. 2d), stout harpoon chaetae, greatly reduced in anterior chaetigers (Fig. 2e–g), well developed on following chaetigers (Fig. 2h); and slender capillary chaetae. Notoaciculae spinose, numbering 4-6 per fascicle, (Fig. 2i), arranged in row immediately in front of dorsal cirri, extending beyond chaetal lobe. Chaetiger 5 with 20 simple chaetae and few capillary chaetae; chaetiger 14 with six harpoon chaetae (with 8-9 barbs), 12 harpoon chaetae (without barbs) and 12 capillary chaetae; middle and posterior chaetigers each with 19-22 harpoon chaetae (each with about 23 coarse barbs) and 21-23 capillary chaetae. Neurochaetae of one basic kind: capillaries with or without spurs (Fig. 2j), the former with smooth long prongs 3-4 times length of short prongs (Fig. 2k–m). Neuroaciculae spinose, numbering 7-9, extending beyond neuropodial lobe, arranged along dorsal superior region of fascicle (Fig. 2n).

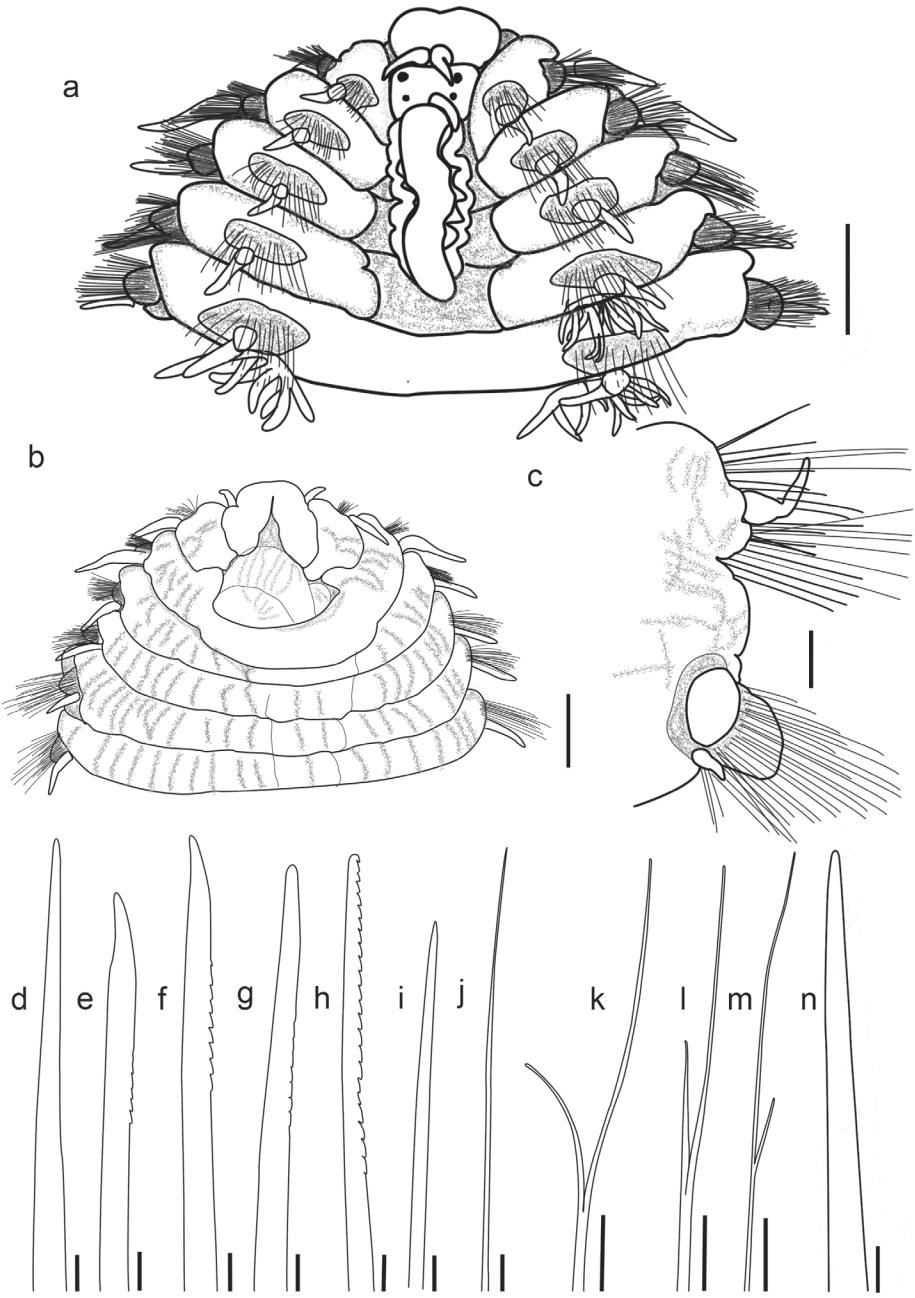

Figure 2. *Alleurythoe tenuichaeta* gen. n. & sp. n., holotype. **a** Anterior chaetigers, dorsal view **b** Anterior chaetigers, ventral view **c** Parapodia of middle chaetiger, posterior view **d** Greatly reduced harpoon chaeta, notopodium of chaetiger 5 **e–g** Reduced harpoon chaeta, notopodium of chaetiger 14 **h** Harpoon chaeta, notopodium of chaetiger 106 **i** Acicula, notopodium of chaetiger 106 **j** Capillary chaeta, neuropodium of chaetiger 85 **k** Bifurcate chaeta, neuropodium of chaetiger 22 **l–m** Bifurcate chaetae, neuropodium of chaetiger 85 **n** Simple chaeta, neuropodium of chaetiger 85. Scale bars: **a–b** 1 mm; **c** 0.5 mm; **d–n** 50 μm.

Paratype: Pygidium with dorsal anus opening on last three chaetigers (Fig. 1i), pygidial cirrus with rounded anal papilla.

Etymology. The name of this species refers to the slender form of its capillary neurochaetae.

Distribution. Presently known only from the type location, Beibu Gulf, South China Sea.

Remarks. *Alleurythoe tenuichaeta* sp. n. is anatomically similar to *Eurythoe rullieri* Fauvel, 1953 because the caruncle of both species is free from the body wall. For example, the relatively narrow median keel of *Alleurythoe tenuichaeta* sp. n., does not overlap the lateral lobes, while that of *Eurythoe rullieri* broadly overlaps the contiguous lateral lobes. The new species is further differentiated in having branchiae first present from chaetiger 4, rather than chaetiger 3, and lacking the thick bifurcate neurochaetae that are characteristic of *E. rullieri* and the genus *Eurythoe* (Fauvel 1953).

Alleurythoe tenuichaeta sp. n. also resembles *E. paupera* (Grube 1856) in having quadrangular body form, branchiae first present from the fourth chaetiger. However, caruncles and notochaetae differ in these species. The caruncle of *Alleurythoe tenuichaeta* is attached to and confluent with the posterior prostomial lobe, and free of the body wall, while the caruncle of *E. paupera* is fixed to the first two chaetigers, extending to the anterior edge of the third chaetiger. Meanwhile, *A. tenuichaeta* sp. n. has harpoon notochaetae and bifurcate neurochaetae, both of which are absent in *E. paupera* (Grube 1856).

Key to genera of Amphinominae Lamarck, 1818 (modified from Borda 2012)

1	Caruncle absent, neuropodia arising from ventral body surface; neurochaetae retractile..... ***Hipponoe*** **Audouin & Milne Edwards, 1830**
–	Caruncle present, variably developed, neuropodia arising from lateral body surface; neurochaetae non-retractile **2**
2	Branchiae present on all chaetigers..... ***Branchamphinome*** **Hartman, 1967**
–	Some chaetigers without branchiae **3**
3	Branchiae present from chaetiger 6, eyes absent ... ***Benthoscolex*** **Horst, 1912**
–	Branchiae present from chaetiger 2-4, eyes commonly present **4**
4	Chaetiger 1 dorsally continuous, complete..... **5**
–	Chaetiger 1 dorsally discontinuous, incomplete **6**
5	Stout, distally curved hooks present in notopodia of chaetiger 1; caruncle round, sessile, without free lateral wings; neurochaetae not unidentate; harpoon notochaetae with 1 row of barbs ..... ***Paramphinome*** **Sars, 1869**
–	Stout, distally curved hooks not present in notopodia of chaetiger 1; caruncle stalked, broadly triangular to chordate with free lateral wings; neurochaetae unidentate; harpoon notochaetae with up to 5 rows of barbs .... ***Amphinome*** **Bruguière, 1789**
6	Caruncle small and inconspicuous, not extending beyond one external chaetiger posteriorly..... **7**

– Caruncle large and conspicuous, extending beyond one external chaetiger posteriorly..... **8**

7 Branchiae present on almost all chaetigers, with modified neurochaetae .... ***Cryptonome*** **Borda, Kudenov, Bienhold & Rouse, 2012**

– Branchiae restricted to anterior chaetigers, neurochaetae unmodified..... .....***Linopherus*** **Quatrefages, 1866**

8 Caruncle with smooth median keel, with oblique divergent lateral lobes..... .....***Pherecardia*** **Horst, 1886**

– Caruncle with or without median keel, lateral lobes not oblique divergent..... **9**

9 Caruncle without a median lobe, with paired lateral lobes forming a complex monopodial-like pattern of bipinnate chevrons opening anteriorly ....***Hermodice*** **Kinberg, 1857**

– Caruncle with a smooth median lobe, with paired lateral lobes not forming a complex monopodial-like pattern of bipinnate chevrons opening anteriorly ... **10**

10 Caruncle sinusoidal, median keel not thickened, not pronounced, fused to body wall for most of its length..... ***Pareurythoe*** **Gustafson, 1930**

– Median keel of caruncle sinusoidal, attached to and confluent with posterior prostomial lobe, supported by a basal plate and free of body wall, median keel not overlapping lateral lobes; branchiae present from chaetiger four, bifurcate neurochaetae capillary, slender ..... ***Alleurythoe*** **gen. n.**
Caruncle not sinusoidal, fused to body wall for most of its length, without basal plate, median keel thickened and pronounced, overlapping lateral lobes; branchiae present from chaetigers 1-4, bifurcate neurochaetae short and thick .....***Eurythoe*** **Kinberg, 1857**

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The millipede genus *Stemmiulus* Gervais, 1844 in Cameroon, with descriptions of three new species (Diplopoda, Stemmiulida, Stemmiulidae)

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Abstract

The large pantropical millipede genus *Stemmiulus*, which currently encompasses more than 150 species, i.e. the bulk of the species diversity of the family Stemmiulidae and entire order Stemmiulida, is shown to comprise seven species in Cameroon, including three new ones: *S. ongot* Nzoko Fiemapong & VandenSpiegel, **sp. n.**, *S. uncus* Nzoko Fiemapong & VandenSpiegel, **sp. n.**, and *S. mbalmayoensis* Nzoko Fiemapong & VandenSpiegel, **sp. n.** In addition, *S. beroni* Mauriès, 1989, previously known only from the type locality in Nigeria, is recorded from Cameroon for the first time, also being redescribed based on new samples. A key is given to all species of the genus encountered in the country, based on male gonopodal conformation, except for *S. camerunensis* (Silvestri, 1916), which was described only from female and juvenile material.

Keywords

Cameroon, key, new species, *Stemmiulus*, taxonomy

Introduction

The Stemmiulida is a small pantropical order of Diplopoda which contains only three genera in a single family, Stemmiulidae. According to the latest classification (Enghoff et al. 2015), apart from two monobasic genera, one each in the Caribbean and Vietnam, the family is largely represented by the likewise pantropical genus *Stemmiulus* Gervais, 1844. Its 150+ species in comparable shares range from Central (one species introduced to Florida, USA) to northern South America (south to the Brazilian states of Amazônas and Bahia, as well as northern Peru), on the one hand, and Central Africa, on the other. Several *Stemmiulus* species occur in southern India and Sri Lanka, while only a few marginally also in New Guinea and the neighbouring island of Halmahera, Indonesia (Mauriès et al. 2010; Shelley and Golovatch 2011).

At present, *Stemmiulus* in Africa is comprised of 51 species or subspecies (Table 1) which range from Senegal to Tanzania and cover most of tropical Africa with the exception of southern Africa and Madagascar (Shelley and Golovatch 2011). Of them, only four species have been reported from Cameroon. The present paper puts on record three new species of *Stemmiulus* from Cameroon. In addition, *S. beroni* is found in Cameroon for the first time, also being redescribed from new samples, the first outside its type locality in Nigeria.

Materials and methods

The material underlying the present contribution was collected in Cameroon in 2014–2016. All type specimens are housed in the collection of the Royal Museum for Central Africa, Tervuren, Belgium (**MRAC**). The samples are stored in 70% ethanol. Specimens for scanning electron microscopy (SEM) were air-dried, mounted on aluminium stubs, coated with gold, and studied using a JEOL JSM-6480LV scanning electron microscope. Photographs were taken with a Leica DFC 500 mounted on a Leica MZ16A stereomicroscope. Images were processed with Leica Application Suite. After examination, SEM material was removed from stubs and returned to alcohol, all such samples being kept in MRAC.

Systematic account

Order Stemmiulida Cook, 1895
Stemmiulidae Pocock, 1894

***Stemmiulus* Gervais, 1844**

Type-species. *Iulus* (recte: *Julus*) *bioculatus* Gervais & Goudot, 1844.

Table 1. Checklist of the African species of *Stemmiulus* with locality or country records.

1. *S. albicephalus* Mauriès, 1989; Tanzania	27. *S. mauriesi* VandenSpiegel, 2001; Kenya
2. *S. albicollis* Demange & Mauriès, 1975; Guinea and Ivory Coast (Mts Nimba)	28. *S. morbosus* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba)
3. *S. altipratensis* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba and Tonkoui)	29. *S. nigricollis* (Porat, 1894), sensu Mauriès (1967); Cameroon and Gabon
4. *S. aoutii* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba)	30. *S. nimbanus* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba)
5. *S. badonneli* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba)	31. *S. nimbanus altipratensis* (Demange & Mauriès, 1975); Mt Nimba
6. *S. bellus* (Cook, 1895); Liberia, Mt Nimba	32. *S. oculiscaptus* Demange & Mauriès, 1975; Mt Nimba
7. *S. beroni* Mauriès, 1989; Nigeria (and Cameroon, first record)	33. *S. pencillatus* (Cook, 1895); Liberia
8. *S. calcarifer* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba)	34. *S. perexiguus* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba)
9. *S. camerunensis* (Silvestri, 1916); Cameroon	35. *S. perparvus* (Silvestri, 1916); Guinea
10. *S. calvus* (Cook, 1895); Liberia and Guinea (Mt Nimba)	36. *S. proximatus* (Silvestri, 1916); Cameroon
11. *S. discotarsus* VandenSpiegel, 2001; Kenya	37. *S. pullulus* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba)
12. *S. elegans* (Silvestri, 1916); Dahomey	38. *S. ramifer* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba)
13. *S. feae* (Silvestri, 1916); Guinea-Bissau	39. *S. recedens* (Silvestri, 1916); Guinea
14. *S. furcosus* (Demange, 1971); Sierra Leone	40. *S. regressus* (Silvestri, 1916); Guinea
15. *S. genuinus* (Silvestri, 1916); Nigeria	41. *S. royi* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba)
16. *S. giffardi* (Silvestri, 1916) ; Ghana	42. *S. saloumensis* Mauriès, 1989; Senegal
17. *S. gilloni* (Mauriès, 1979); Senegal	43. *S. simpliciter* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba)
18. *S. howelli* Mauriès, 1989; Tanzania	44. *S. schioetzae* (Mauriès, 1979); Sierra Leone
19. *S. infuscatus* Mauriès, 1989; Cameroon	45. *S. sjoestedti* (Brolemann, 1920); Tanzania
20. *S. jocquei* (Mauriès, 1985); Malawi	46. *S. spinogonus* Mauriès, 1989; Tanzania
21. *S. keoulentanus* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba)	47. *S. tremblayi* (Demange & Mauriès, 1975); Guinea and Ivory Coast (Mts Nimba)
22. *S. kivuensis* Mauriès, 1989; Congo D. R.	48. *S. trilineatus* (Demange, 1971); Sierra Leone
23. *S. lacustris* (Hoffman, 1975); Rwanda	49. *S. uluguruensis* Mauriès, 1989; Tanzania
24. *S. latens* (Silvestri, 1916); Guinea-Bissau	50. *S. usambaranus* Mauriès, 1989; Tanzania
25. *S. lavellei* Mauriès, 1989; Côte d'Ivoire	51. *S. verus* Silvestri, 1916; Ghana
26. *S. lejeunei* Mauriès, 1989; Congo D. R.	

Distribution. Species of the genus *Stemmiulus* are know from North America (one species introduced to Florida), Central America (Mexico, Honduras, Guatemala, Costa Rica and Panama), the Caribbean (Haiti, Dominican Republic, Puerto Rico, Cuba, Guadeloupe, Virgin Islands), South America (Colombia, Ecuador, Venezuela, Guyana, Suriname, Peru and Brazil), South Asia (India and Sri Lanka), the East Indies (New Guinea and Halmahera, Indonesia), as well as tropical Africa: East Africa

(Tanzania, Kenya, Malawi, Rwanda), West Africa (Nigeria, Ivory Coast, Ghana, Senegal, Sierra Leone, Guinea, Liberia, Benin?, Guinea-Bissau) and Central Africa (Congo, Gabon, Cameroon).

Diagnosis. Small to medium-sized stemmiulid millipedes, reaching up 50 mm in length. Body compressed laterally, tapering gradually towards telson, metaterga striated, eyes consisting of one or two large ommatidia on each side of head.

Stemmiulus ongot Nzoko Fiemapong & VandenSpiegel, sp. n.

http://zoobank.org/E9E71257-DE14-426E-96B1-6F6216087D5E
Figure 1

Type material. Holotype ♂ (MRAC 22734), Cameroon, Center Region, Ongot disturbed Forest, N 03°51', E 011°25', ca 810 m a.s.l., 30.I.2015, leg A. R. Nzoko Fiemapong.

Paratype: 1 ♂ (SEM, lost).

Etymology. The species is named after Ongot, the type locality.

Diagnosis. *Stemmiulus ongot* sp. n. is characterized by the first six pairs of male legs being densely setose, the lateral projection of the subterminal lobe of the gonopodal angiocoxites relatively short (Fig. 1H, I), the apical parts of the angiocoxite densely setose (Fig. 1H, I) and, especially, by the peculiar second pair of male legs (Fig. 1E–G), the telopodites of which are 2-segmented, the proximal segment being expanded apicolaterally and bearing a lateral fringe of setae.

Description. Holotype: adult male, ca 15 mm in length, 1.7 mm in maximum diameter, body with 43 rings. Head and collum dark brown, other body rings brown with a light axial dorsal stripe, legs and antennae yellowish.

Head typical in shape, beset with numerous simple macrosetae (Fig. 1A); ommatidia 2+2, anterior ones slightly smaller; antennae long and setose, apices reaching fourth body ring. Gnathochilarium concave, stipes densely and uniformly porose.

Collum without any ornamentation. Body rings ovoid in transverse section, height/width ratio of midbody rings ca 0.41; no legless body rings in front of telson. Prozonites smooth, metazonites with oblique transverse striae.

First six pairs of *legs* covered with numerous plumose setae. First pair unmodified, tarsi with a fringe of ventral setae in basal 2/3, but forming no true brush, coxae, femora, postfemora and tibiae each with an apical cluster of prominently enlarged spatulate setae (Fig. 1B, C).

Second pair of legs with coxa enlarged and elongated, anterior face with traces of segmentation, setose over entire anterior surface, glabrous on posterior surface; laterally each produced into a prominent, elongated, conical projection (Fig. 1F, G) and with an apicomesal cluster of elongated setae. Telopodite 2-segmented, proximal segment with an apicolateral projection bearing a lateral fringe of setae, an apicomedial cluster of setae and a ventromedial cluster of long setae (Fig. 1F, G); distal segment long and slender, curved mesad, with a basal cluster of setae and plumose distally (Fig. 1G).

Pair 7 similar to following ones, without specialized setae.

Figure 1. *Stemmiulus ongot* Nzoko Fiemapong & VandenSpiegel, sp. n. ♂ paratype (SEM)**. A** head front view **B** first leg-pair (one); **C** detail of the spatulate setae on the first leg-pair **D** leg-pairs 9 (paragonopods) oral view **E, F, G** leg-pair two, caudal, oral and latero-caudal views, respectively **H, I** leg-pair 8 (gonopods) caudal and oral views, respectively. Abbreviations: **ac**: apicolateral cluster of elongated setae, **An**: angiocoxite, **amc**: apicomedial cluster of setae, **bc**: basal cluster of setae, **cp**: conical projection, **Co**: colpocoxite, **f**: flagella, **lf**: lateral fringe of setae, **lp**: subterminal process, **vmc**: ventromedial cluster of setae, Scale bars 200 μm (**A, H, I**), 100 μm (**B, D–G**), 10 μm (**C**).

Gonopod structure (Fig. 1H, I) typical of the genus, angiocoxite with a small, projecting, subapicolateral process. Apex of colpocoxite simple, with neither a lobe nor a projection surrounding the flagella (Fig. 1H).

Paragonopods small and 3-segmented, median segment carrying a short series of long setae on medial side, distal segment minute, conical, with a few apical setae (Fig. 1D).

Relationships. By the relative complexity of the gonopodal structure *S. ongot* sp. n is closely related to *S. albicephalus* from Tanzania, but the striations of the lateral sides of prozonae remind of those observed in *S. infuscatus* from Cameroon. Nevertheless, the males of these species can easily be distinguished by the structure of the lateral projection of the colpocoxite which is small and apically setose in *S. ongot* sp. n., and relatively elongate without setae in *S. albicephalus* and *S. infuscatus*. On the other hand, the conformation of the second pair of legs of *S. ongot* sp. n. is unique in the entire genus *Stemmiulus*.

Distribution. Known only from the type locality.

Stemmiulus uncus Nzoko Fiemapong & VandenSpiegel, sp. n.

http://zoobank.org/4B09E4F5-BA84-4735-B1E3-86C0E1ACE948
Figure 2

Type material. Holotype ♂ (MRAC 22727), Cameroon, South Region, Vallée du Ntem Division, Engout'Adjap, N02°42', E011°09', ca 2010 m a.s.l., slightly disturbed natural forest under dead leaves, forest, 13.IX.2014, leg. A. R. Nzoko Fiemapong.

Paratypes: 1 ♂ (MRAC 22728), same data, together with holotype; 1 ♂ (SEM, MRAC 22729), same locality, but 14.III.2015, all leg. A. R. Nzoko Fiemapong.

Etymology. The species name emphasizes the characteristic apical part of the colpocoxite which is unciform and pointed at the apex.

Diagnosis. A species of *Stemmiulus* characterized by the first six ambulatory legs being especially robust and covered with peculiar, spatulate setae, also showing a field of numerous simple setae on the inner side of the tarsus (Fig. 2B–E). The gonopod has a relatively simple angiocoxite which forms a densely setose apical corolla. The tip of the colpocoxite forms a characteristic apical hook.

Description. Holotype: adult male, ca 20 mm in length, 1.8 mm in maximum diameter, body with 46 rings. Head and collum dark brown, other body rings brown with a light axial dorsal stripe, legs and antennae yellowish.

Head typical in shape, beset with numerous simple macrosetae; ommatidia 2+2, posterior ommatidia larger than anterior ones; antennae long and setose, apices reaching third body ring. Gnathochilarium concave, stipes densely and uniformly porose, pores surrounded by a field of minute setae.

Collum with a single fold at anterior edge, this being better expressed at lateral margin.

Body rings ovoid (height/width ratio of midbody rings ca 0.31), telson short and upcurved. Both pro- and metazonites with transverse oblique striae better pronounced at pleurotergal margin.

First six pairs of *legs* as in *S. ongot* sp. n., but mostly with filiform and plumose setae (Fig. 2B-E). First pair of legs relatively simple and unmodified.

Figure 2. *Stemmiulus uncus* Nzoko Fiemapong & VandenSpiegel, sp. n. ♂ paratype (SEM). **A** head front view **B, D** 3 and 4 leg-pairs **C** detail of telopodite of 3 leg-pair; **E** detail of spatulate setae on the 3 leg-pair **F, G** leg-pair two, oral and caudal views, respectively **H, I** leg-pair 8 (gonopods) oral and caudal views respectively **J** apical part of right gonopod showing angiocoxite (**An**) surrounding colpocoxite (**Co**) Scale bars 500 μm (**A**), 100 μm (**B, D, F, H, I**), 50 μm (**G, J**), 20 μm (**C**).

Second pair of legs with enlarged coxae (Fig. 2F, G), their anterior surface with a few setae, posterior surface glabrous. Telopodite 2-segmented, proximal segment longer, about twice as long as distal segment, curved caudad, with a ventromedial cluster of long setae (Fig. 3G). Distal segment more slender, with an apical row of short setae (Fig. 3G).

Gonopods (Fig. 2H, I) with a large and relatively simple angiocoxite forming an apical corolla and covered with a dense field of numerous setae. Colpocoxite with its tip forming a characteristically strong and curved hook (Fig. 2H–J).

Paragonopods small and 3-segmented, each of medial and distal segments carrying a small series of short setae.

Female unknown.

Relationships. The peripheral characteristics and simple gonopods bring *S. uncus* sp. n. close to *S. beroni*, from Nigeria, and *S. pullulus*, from Mount Nimba. All these species share the simplicity of their second pairs of male legs, despite the fact that the basal segment of the telopodite in the new species is about twice as large and broad as the distal segment. Nevertheless, the males of this trio can easily be distinguished by the structure of the apical part of the colpocoxite. The latter ends up in a pointed curved hook in *S. uncus*, versus a pointed straight tip in *S. beroni* or a rounded tip in *S. pullulus*.

Distribution. Known only from the type locality.

Stemmiulus mbalmayoensis Nzoko Fiemapong & VandenSpiegel, sp. n.

http://zoobank.org/E0156B15-46D8-4349-B47C-93724027D862
Figure 3

Type material. Holotype ♂ (MRAC 22730), Cameroon, Center Region Zamakoe near Mbalmayo Reserve Forest, N 03°33', E 011°31', 815 m a.s.l., forest, 19.IV.2014, leg. A. R. Nzoko Fiemapong.

Paratype: 1 ♂ (SEM, MRAC 22731), same locality, pitfall trap, 18.IV.2015, leg. A. R. Nzoko Fiemapong.

Etymology. The species is named after the Mbalmayo Reserve Forest, the type locality.

Diagnosis. A species close to the previous new one and to *S. beroni* by its external characters, but is easily distinguished by the structure of the colpocoxite whose apical part is axe-shaped.

Description. Holotype: adult male, ca 20 mm in length, 1.8 mm in maximum diameter, body with 46 rings. Head and collum dark brown, other body rings brown with a light axial dorsal stripe, legs and antennae yellowish.

Head typical in shape, beset with numerous simple macrosetae as in previous species; ommatidia 2+2, posterior ommatidia slightly larger than anterior ones. Antennae reaching the fourth body ring, and covered with minute setae.

Gnathochilarium concave, without special modification, stipes densely and uniformly porose, pores surrounded by a field of setae. Collum with a single fringe at anterior edge, this being best visible laterally. Body rings ovoid (height/width ratio of midbody rings ca 0.38), metazonites with transverse oblique striae better visible at pleurotergal margin. Striations on prozonites more weakly developed than on metazonites. Annal valves beset with numerous setae.

First pair of *legs* and legs 3 to 6 as in *S. uncus* (Fig. 3A).

Second pair of legs with enlarged and subquadrate coxae (Fig. 3B, C), anterior surface with traces of segmentation, a few setae on entire anterior surface, posterior

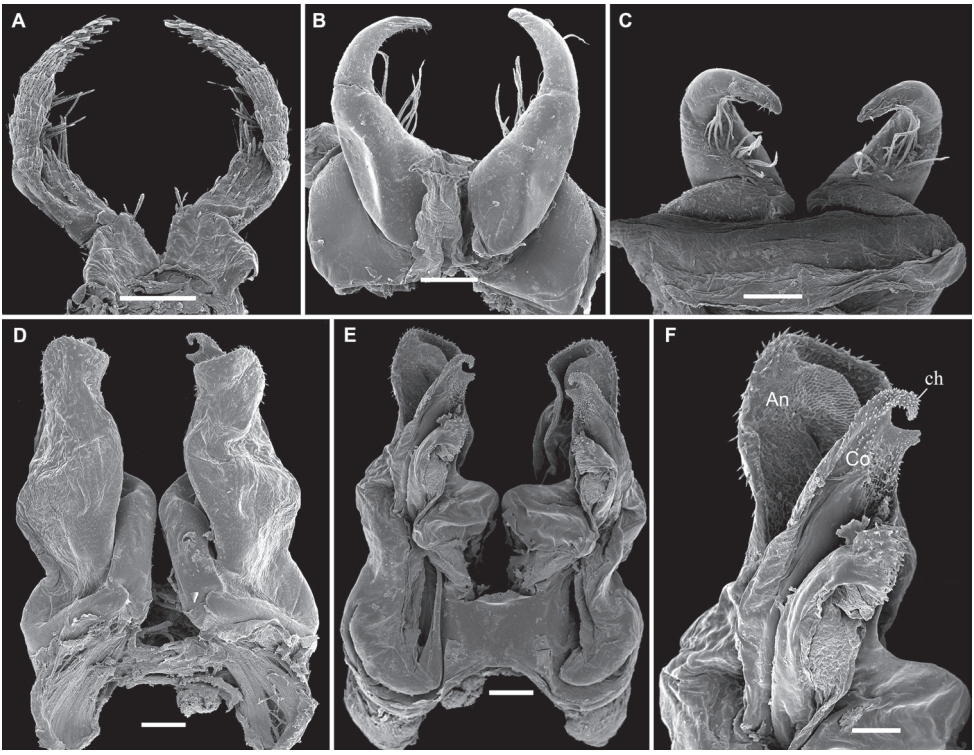

Figure 3. *Stemmiulus mbalmayoensis* Nzoko Fiemapong & VandenSpiegel, sp. n. ♂ paratype (SEM). **A** first leg-pair oral view **B, C** leg-pair two, oral and caudal views, respectively **D, E** leg-pair 8 (gonopods) oral and caudal views, respectively **F** apical part of right gonopod showing angiocoxite (**An**) partly surrounding colpocoxite (**Co**). Scale bars 200 μm (**A**), 100 μm (**B–E**), 50 μm (**F**).

surface glabrous. Telopodite 2-segmented, proximal segment longer, about twice as long as distal one, curved ventrad, with a ventromedial cluster of long setae (Fig. 3B, C). Distal segment more slender, curved mesad, with an apical row of short setae.

Gonopods (Fig. 3D–F) relatively simple in structure, angiocoxite with a well prominent constriction in subapical part, apical part forming a setose corolla. Colpocoxite ending up in an axe-shaped structure slightly protruding from angiocoxite.

Paragonopods small, 3-segmented, quite similar to those in most of the African congeners.

Female unknown.

Relationships. Most of the peripheral characters and especially the simple gonopods seem to bring *S. mbalmayoensis* sp. n. close to *S. uncus* sp. n., *S. beroni* and *S. pullulus*. Nevertheless, the males of all these species can easily be distinguished by the structure of the colpocoxite, in which the apical part is axe-shaped in *S. mbalmayoyensis* sp. n., pointed and unciform in *S. uncus* sp. n., pointed and straight in *S. beroni*, but with a rounded tip in *S. pullulus.*

Distribution. Known only from the type locality.

***Stemmiulus beroni* Mauriès, 1989**
Figure 4

New material. 1 ♂, 1 ♀ (MRAC 22732), 1 ♂ (SEM, MRAC 22733), Cameroon, South Region, Kribi, road toward Bipindi, Bidou I, cocoa plantation, disturbed vegetation near secondary forest; N3°03'25", E10°06'02" 80 m a.s.l. collect by hand 14.X.2014, all leg. A. Henrard and VandenSpiegel.

Description. Adult males ca 13 mm in length, 1.5 mm in maximum diameter (height/width ratio ca 1.36), body with 43–44 rings; female with 46 rings, including 2 apodous (height/width ratio ca 1.15). Body light brown with 2–3 marbled spots lying symmetrical to mid-dorsal region which is covered by a large yellowish band all along its extent (Fig. 4A). Metazonites and dorsal margins of antennomeres darkish; legs and ventral parts of body yellowish.

Head typical in shape, beset with numerous simple macrosetae (Fig. 4B); ommatidia 2+2, posterior ommatidia ca 1.6 times larger than anterior ones, antennae long and densely setose. Body rings with oblique striations converging dorsad; prozonital groove weakly visible. Gnathochilarium concave, stipes densely and uniformly porose. Lingual lamellae subtrapezoidal with concave striations (Fig. 4C). Collum with a small fold at anterior edge. Body rings ovoid (height/width ratio of midbody rings ca 0.38), with transverse oblique striae better expressed at pleurotergal margin and converging anteriorly dorsad. Ozopores very small. Pygidium with 2+2 setigerous spinnerets.

First pair of male *legs* with short and globular coxae, telopoditomeres clothed with numerous plumose setae. First article of telopodite long and voluminous, nearly equal in length to all three other telopoditomeres combined, tarsal segment with a brush of setae on basal two-thirds of ventral surface.

Second pair of male legs relatively simple, with rounded coxae and 2-segmented telopodites, distal segment of the latter being relatively slender. Anterior side of proximal part of telopodite covered with long plumose setae (Fig. 4G, H).

Ventral surface of first six pairs 3 to 7 of male legs clothed with numerous plumose setae, tarsal segment with a fringe of setae in basal two-thirds of ventral surface but no true brush formed (Fig. 4D, E).

Legs 8 and following unmodified (Fig. 4F).

Gonopods (Fig. 4J–M) relatively simple; angiocoxite subconical, forming distally a corolla covered with a field of numerous setae. Colpocoxite shorter than angiocoxite, folded leaf-shaped, encompassing the flagellum tip and ending in a finger-like apical structure.

Remark. This species is new to the fauna of Cameroon and is illustrated, based on new material taken from outside the type locality (Jos, Plateau State, Nigeria) for the first time. The fresh males from Cameroon are peculiar in the apical part of the colpocoxite being slightly curved (Fig. 4K–M), versus straight in the holotype.

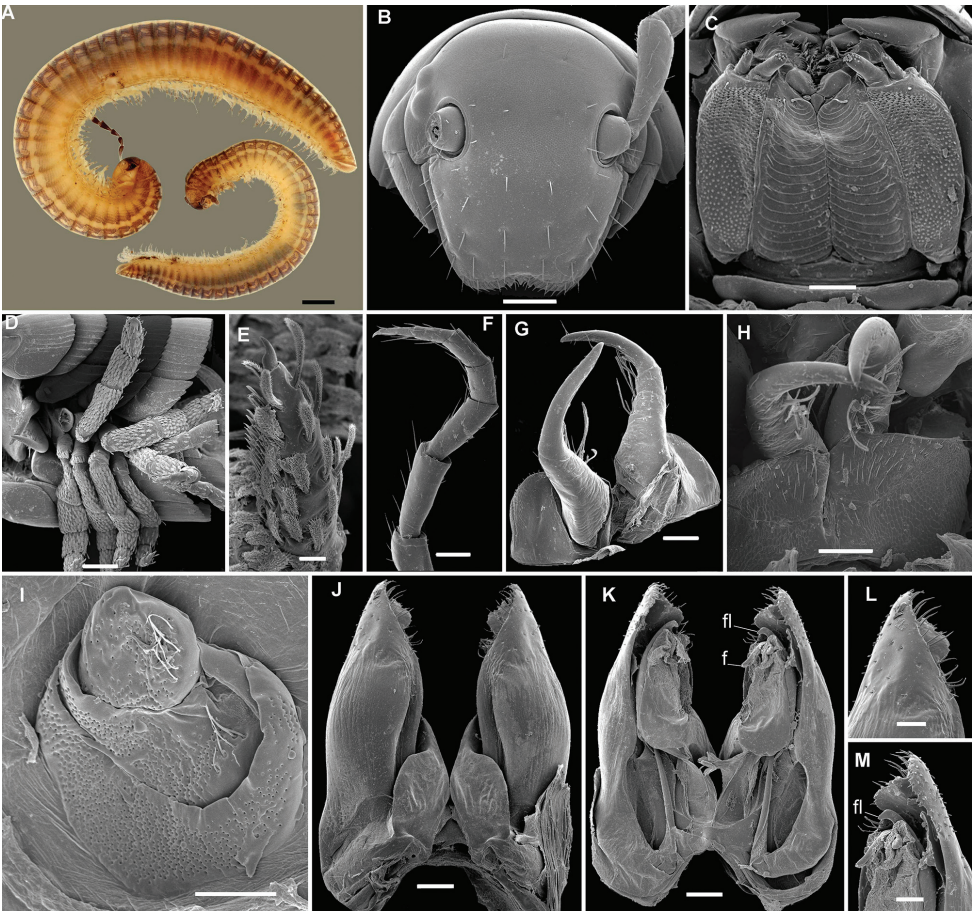

Figure 4. *Stemmiulus beroni* Mauriès, 1989. **A** Habituses of ♂ (small specimen) and ♀ (large specimen) **B** head front view **C** gnathochilarium **D** leg-pairs 3 to 7 **F** first leg-pair (one) **G, H** leg-pair two, oral and caudal views, respectively **I** left paragonopod, oral view **J, K** leg-pair 8 (gonopods) oral and caudal views, respectively **L, M** apical part of right gonopod oral and caudal views, respectively. Abbreviations**: f**: flagella, **fl**: finger-like process. Scale bars 1 mm (**A**), 200 μm (**B, D**), 100 μm **(C, F–H, J, K)**, 50 μm (**L, M**), 20 μm (**E**)

Taxonomic comments on *S. nigricollis*

Among the *Stemmiulus* species known to occur in Cameroon, *S. nigricollis* was the first to be described (Porat 1894). According to Mauriès (1967), who revised the type material of *S. nigricollis*, Porat based the description on one adult and one subadult female, both labelled "Types" and actually representing syntypes. Regrettably, there was no other geographical label given other than "Kamerun". Working on a diplopod collection from Gabon, Mauriès (1967) discovered a species he identified as *S. nigricollis* in view of marked external similarities and the proximity of Gabon to Cameroon.

He designated a male neotype from Gabon, erroneously thinking that could stabilize nomenclature. However, the act of neotype designation is only warranted when true type material is lost. Therefore, since the syntypes are still available and kept at the Stockholm Museum, the species from Gabon described by Mauriès is to be referred to as *S. nigricollis* (Porat, 1894) *sensu* Mauriès, 1967.

Since the key below is based on male characters alone, the female-based *S. camerunensis* is excluded from treatment. Silvestri (1916) described his *S. camerunensis* from a series of syntypes which included an adult female and two juveniles, all taken at Victoria, Cameroon. Only recollecting fresh topotypes, including male material, would finally allow us to clarify the identity of *S. camerunensis* and to incorporate this species into a key.

Key to *Stemmiulus* species known to occur in Cameroon

1 Angiocoxite of gonopod with a subapicolateral projection (Fig.1H, lp).....**2**
– Angiocoxite of gonopod without a subapicolateral projection **4**
2 Second pair of legs relatively complex in structure, coxa with a well pronounced subconical projection anterolaterally (Fig.1F, cp) **3**
– Second pair of legs relatively simple in structure, coxa without projection..... .....***S. nigricollis***
3 Basal segment of telopodite of second pair of legs forming laterally a subconical projection with a field of localized setae on the tip (Fig. 1E–G) .... ***S. ongot* sp. n.**
– Basal segment of telopodite of second pair of legs without subconical projection..... ***S. infuscatus***
4 Corolla of angiocoxite of gonopod with a well-pronounced constriction in subapical part (Fig. 2H, I).....***S. uncus* sp. n.**
– Corolla of angiocoxite of gonopod without a constriction in subapical part 5
5 Apical part of colpocoxite forming a stretched finger-like process (Fig. 4K,M) ..... ***S. beroni***
– Apex of colpocoxite axe-shaped (Fig. 3D–F) ..... ***S. mbalmayoensis* sp. n.**

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CHECKLIST

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Checklist of the freshwater fishes of Colombia: a Darwin Core alternative to the updating problem

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Abstract

The present work is part of a process to create a Catalogue of the Freshwater Fishes of Colombia and consisted in the depuration and updating of the taxonomic and geographic components of the checklist of the freshwater fishes of Colombia. An exhaustive revision of the 1435 species recorded in 2008 was necessary to: 1. Add new species described since 2009 and species originally described from Colombia but inadvertently omitted in 2008; 2. Add new records of already described species; 3. Delete species whose presence in Colombia was not supported by voucher specimens in ichthyological collections; and 4. Revise the geographic distribution of the species listed in 2008. This process resulted in the following numbers: 1. Total number of freshwater fish species in Colombia: 1494; 2. Number of species recorded by hydrographic region - Amazon: 706, Orinoco: 663, Caribbean: 223, Magdalena-Cauca: 220, Pacific: 130; and 3. Number of endemic species: 374 (76% from the trans-Andean region). Updating the current checklist is a fundamental requirement to ensure its incorporation in the decision-making process with regard to the conservation of Colombian aquatic species and ecosystems, which are facing transformation

processes as a result of activities such as mining, construction of hydroelectric plants, expansion of the agricultural frontier and subsequent deforestation, industrial and domestic pollution, development of waterways, introduction of exotic species, and climate change.

Resumen

El presente trabajo es parte de un proceso para crear un Catálogo de Peces de Agua Dulce de Colombia y consistió en la depuración y actualización de los componentes taxonómico y geográfico del listado de peces de agua dulce de Colombia. Una revisión exhaustiva de las 1435 especies registradas en 2008 fue necesaria para: 1. Adicionar las especies nuevas descritas desde 2009 y especies descritas originalmente para Colombia pero omitidas inadvertidamente en 2008; 2. Adicionar nuevos registros de especies ya descritas; 3. Eliminar especies cuya presencia en Colombia no estaba soportada por especímenes en colecciones ictiológicas; y 4. Revisar la distribución geográfica de las especies listadas en 2008. Este proceso resultó en las siguientes cifras: 1. Número total de especies de peces de agua dulce en Colombia: 1494; 2. Número de especies registradas por región hidrográfica - Amazonas: 706, Orinoco: 663, Caribe: 223, Magdalena-Cauca: 220, Pacífico: 130; y 3. Número de especies endémicas 374 (76% distribuidas en la región transandina). La actualización del presente listado es un requerimiento fundamental para asegurar su incorporación en el proceso de toma de decisiones en lo concerniente a la conservación de las especies y ecosistemas acuáticos colombianos, los cuales están enfrentando procesos de transformación, como resultado de actividades como la minería, construcción de plantas hidroeléctricas, expansión de la frontera agropecuaria y subsecuente desforestación, polución industrial y doméstica, desarrollo de hidrovías, introducción de especies exóticas y cambio climático.

Keywords

Aquatic ecosystems, conservation, endemic, richness, South America

This paper is in honour of the late Richard Peter Vari, who was a co-author of the checklist of the freshwater fishes of Colombia in 2008, a paper that highlighted the importance of the Colombian ichthyofauna in the Neotropical and global contexts, and addressed important issues in terms of the conservation challenges and needs to improve the sampling effort of the continental aquatic systems in Colombia. After almost a decade since that checklist was published, the challenges and tasks pointed out by Richard and co-authors have been attained in several ways in the present paper. He will always be remembered not just for his enormous contribution to the Colombian and Neotropical ichthyology, but most especially for his kindness and willing collaboration.

Introduction

Since Maldonado-Ocampo et al. (2008), important advances have been made to update the current number of fish species found in Colombian freshwater ecosystems. The first is new fieldwork, which has led to significant range expansions in known distribution of species and new species discoveries; the second is new revisions of existing ichthyological collections. Several checklists have been published at local or regional scales (e.g. Lasso et al. 2009, Villa-Navarro et al. 2011, Ortega-Lara et al. 2012); and an important

amount of information has also been published in books that include aspects on ecology, fisheries, threats, and migratory status (e.g. Usma et al. 2009, 2013, Lasso et al. 2011a, Maldonado-Ocampo et al. 2012, Mojica et al. 2012, Zapata and Usma 2013).

During this time frame (nine years), fieldwork efforts have been conducted mainly in three of the five hydrographic Colombian regions as delimited by IDEAM (2015): Amazon (Putumayo, Caquetá, Guainía, and Vaupés rivers), Orinoco (piedmont rivers of the Meta and Guaviare basins, and rivers draining directly to the Orinoco as the Bita and Inírida), and Magdalena-Cauca (especially the upper and middle sectors). Some collections in other important rivers as the Catatumbo, Sinú, and Atrato (Caribbean system), San Juan and Dagua (Pacific system), have also been conducted. All fishes collected in these rivers are deposited in the following ichthyological collections of Colombia (acronyms follow Sabaj, 2016): CAR, CIACOL, CIUA, CP-UCO, CZUT-IC, IAvH-P, ICN-MHN, IMCN, and MPUJ.

Complementing these fieldwork and taxonomic efforts that improve the information quality of the current annotated checklist, an important project "Catalogue of the Freshwater Fishes of Colombia" is in progress. From mid-2014, all previously mentioned ichthyological collections began a data depuration process. First, and the most important task, all the catalogue data bases associated with these collections are being translated to the Darwin Core standard, allowing the data to be adequately formatted to make them freely accessible through facilitators such as GBIF and SiB Colombia (Colombia Biodiversity Information System: www.sibcolombia.net).

At the moment, all available records to mid-2017 in CAR, CIACOL, CICH, CIUA, CP-UCO, CZUT-IC, IAvH-P, ICN-MHN, IMCN, and MPUJ from the hydrographic regions of Orinoco (29000), Magdalena-Cauca (22000), Amazon (14000), Caribbean (5000), and Pacific (1000), have been updated in the following data fields: Occurrence, Organism, Event, Location, Identificacion, and Taxon. The project hopes to conclude this data depuration process for all available records in these collections (around 75000 in total) by December of 2017. The updated annotated checklist presented here and the data available in the collections is the basis for the "Catalogue of the Freshwater Fishes of Colombia" that will be hosted at the Catalogue of Species of the Colombia Biodiversity Information System (http://www.biodiversidad.co/#/), and linked to the website of the Colombian Ichthyological Association (ACICTIOS, http://acictios.org).

For the first time in Colombia, freshwater ecosystems are the focus of public attention and different strategies are being discussed by the academy and decision-makers to develop adequate conservation and sustainable use strategies for these ecosystems and their biota (Vilardi et al. 2014, Tognelli et al. 2016). The updated information presented here plus the continuous work in the collections to update and edit the data bases will be of extreme importance in terms of the quality and quantity of available information to facilitate evidence-based decision making that can help counter the numerous threats facing aquatic ecosystems (hydropower development, mining, pollution, deforestation, exotic species invasion, and climate change scenarios) that are affecting this enormous fish diversity.

Methods

The starting point for the updating process and corrections to the checklist of the freshwater fishes of Colombia was the checklist of Maldonado-Ocampo et al. (2008). This revision incorporated four main aspects: 1. Addition of newly described species since 2009 and species originally described for Colombia but inadvertently omitted in Maldonado-Ocampo et al. (2008), 2. Addition of new records of already described species, 3. Deletion of nominal species whose presence in Colombia was not supported by voucher specimens in collections, and 4. Revision of the geographic distribution of those species previously listed in Maldonado-Ocampo et al. (2008). The main sources used for this revision consisted in research articles describing new species, taxonomic and systematic revisions of genera and families, direct examination of specimens catalogued at CZUT-IC, IAvH-P, IMCN, and MPUJ, and to a lesser extent, regional checklists explicitly supported by catalogued lots of specimens for each species entry, and lists of examined material of taxonomic and systematic works dealing with Neotropical groups.

The complete list of species was assembled using the Darwin Core standard (DwC) and is available both as Suppl. material 1 and through the Integrated Publishing Tool of the Colombian node of GBIF, the SiB Colombia (http://www.sibcolombia.net/), as version 2.5 at http://doi.org/10.15472/numrso. Future updates of the list will be published in the latter repository. Changes incorporated to each new version of the list will be summarized in the respective metadata section of the electronic resource. A curatorial team presented during the celebration of the biannual meeting of the "*Asociación Colombiana de Ictiólogos*" (ACICTIOS) will be in charge of the updating and revision process of the list and of its periodic publication (annually or semestrally, depending on the amount of changes accumulated every six months). Below we list fields for which we consider a further detailed explanation of the criteria adopted is needed in order to provide an unequivocal framework for the definitions used for each field.

taxonID. This field is defined as a unique and stable-through-time alphanumeric identifier (taxonomic identifier) provided by Life Science Identifier (LSID).

namePublishedIn. This field links each species name to its respective source (i.e., a bibliographic reference) and was restricted to include only those species originally described from Colombia, i.e., only the bibliographic reference of the original description of species that listed Colombian specimens (in some cases from border regions as well) as types, as well as descriptions that explicitly listed Colombian specimens as non-types.

references. This field is reserved for those species not described from Colombia, but whose presence in the country is supported by a bibliographic reference. In this case, we made a special effort to locate the first chronological reference that explicitly mentioned Colombian specimens collected and deposited in national or international collections or that provided images that allows unambiguous recognition of a determined species,

for each main hydrographic system. In some cases, we complemented these primary bibliographic references with more recent references, where additional catalogued lots are provided. Therefore, this approach is somewhat different from the practice implemented in Maldonado-Ocampo et al. (2008), in order to avoid the inclusion of references that are merely lists solely based on previous published works. Future publications reporting new species or distribution extensions of those species already included in this checklist are encouraged to indicate cataloged lots that support them. This action allows traceability and verification of records whenever needed, and facilitates the implementation of new taxonomical arrangements when they need to be proposed.

associatedOccurrences. As in the previous field, here we supported the presence of species not originally described from Colombia. We listed catalogued lots (preferably available in Colombian collections) for species not supported by bibliographic references or to complement references that do not provide lots. Lots are provided for each main hydrographic system. In addition, we also listed here catalogued lots corresponding to types.

locationRemarks. Only includes species that are endemic to the Colombian territory.

dynamicProperties. Corresponds to the column CT (endangered and threatened species) used in Maldonado-Ocampo et al. (2008). The information in this field was based in Mojica et al. (2012) and since the scope of the present list is of national scale, threat categories are restricted to Colombia.

occurrenceRemarks. Indicates the type of commercial use of each species (i.e., Fisheries, Ornamental). The list of fish species included in Colombian inland fisheries is from Lasso et al. (2011a), while the list of ornamental species is from Ortega-Lara et al. (2015) and Ortega-Lara (2016).

locality. Type localities of species described from Colombia are listed as they are cited in their respective original descriptions or as they appear in the Catalogue of Fishes (http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp).

Institutional acronyms follow Sabaj (2016). Species formerly indicated as indeterminate (sp) in Maldonado-Ocampo et al. (2008) are listed at the genus level, since they represent still undescribed species and account for the presence of genera not represented by already described species in Colombia. Classification of taxa of higher taxonomic ranks (Class to Suborder) and arrangement order of respective taxa followed the proposal of Betancur-R. et al. (2017). The following proposals of classification were adopted for the indicated groups: Tagliacollo et al. (2016): Gymnotiformes; Mirande (2009, 2010) and Oliveira et al. (2011): Characiformes, but in incongruent cases, we just adopted the latest published proposal (i.e., Oliveira et al. 2011), not implying in any form a validation over the former works of Mirande; Thomaz et al. (2015): Stevardiinae; Sullivan et al. (2006): Siluriformes; Lujan et al. (2015a): Hypostominae; Roxo et al. (2014): Hypoptopomatinae and Otothyrinae; Covain et al. (2016): Loricariinae; Birindelli (2014): Doradoidea; Sullivan et al. (2013a): Pimelodoidea; López-Fernández et al. (2010): Cichlidae. For remaining groups we followed Nelson et al. (2016).

Results

New species described from Colombia

Since the publication of the most recent checklist (Maldonado-Ocampo et al. 2008), 106 new species of freshwater fishes have been described from Colombia (Suppl. material 2), at a rate of approximately ten species per year. This places the total number of species described or recorded for Colombia at 1494 freshwater fishes (Table 1), a slightly higher figure than the last recorded number of 1435 species (Maldonado-Ocampo et al. 2008). This slight increment in the total number is especially noteworthy since our careful review of each species name in Maldonado-Ocampo et al. (2008) led to the deletion of 202 nominal species that lacked solid support for keeping them in the current version of the checklist (see below). The assessment process of some doubtful species led to the inclusion of most of the newly recorded species presented here (see also below), through the direct examination of lots of specimens that were formerly used to support those doubtful species. These figures together,

Table 1. Number and percentage of species of freshwater fishes by order in Maldonado-Ocampo et al. (2008) compared to the present checklist.

Order	Number of species in Maldonado-Ocampo et al. (2008)	%	Number of species in the present work	%
Characiformes	637	44.4	644	43.1
Siluriformes	524	36.5	588	39.3
Cichliformes	115	8.0	94	6.3
Gymnotiformes	74	5.2	78	5.2
Cyprinodontiformes	35	2.4	42	2.8
Clupeiformes	11	0.8	10	0.7
Myliobatiformes	9	0.6	11	0.7
Polycentridae and Sciaenidae (included in Perciformes in Maldonado-Ocampo et al. 2008)	7	0.5	8	0.5
Pleuronectiformes	7	0.5	5	0.3
Beloniformes	5	0.3	4	0.3
Batrachoidiformes	3	0.2	3	0.2
Osteoglossiformes	3	0.2	3	0.2
Eleotridae (included in Perciformes in Maldonado-Ocampo et al. 2008)	2	0.1	1	0.1
Synbranchiformes	1	0.1	1	0.1
Tetraodontiformes	1	0.1	1	0.1
Ceratodontiformes (Lepidosireniformes in Maldonado-Ocampo et al. 2008)	1	0.1	1	0.1
	1435	100	1494	100

still place Colombia as the second most-species rich country in the world in terms of its freshwater ichthyofauna. The number of species by hydrographic system is presented in the Table 2, where the Amazon accounts for the highest number of species. A remarkable total of 374 endemic species is now reported from Colombia; 76% of them are species from trans-Andean basins (286 species), and stand as testimony of the unique geological and climatic events that shaped the biogeographic history and taxonomic diversification of the Colombian ichthyological biota.

New records of species for Colombia

The high number of species already described from other countries but newly recorded for Colombia is a direct result of recent inventories in previously unsampled regions (e.g. Lasso et al. 2009, Villa-Navarro et al. 2011, Ortega-Lara et al. 2012) and perhaps equally or more important, from the verification of the taxonomic identity of records of doubtful species listed in Maldonado-Ocampo et al. (2008), as well as suspicious identifications (i.e., names of species distributed in river basins distant or isolated from the Colombian territory), found in the databases of the examined collections. Thus, the number of new records for the Colombian continental ichthyofauna reaches 114 species (see full list in Suppl. material 3, where also respective hydrographic zone and supporting lot and/or bibliographic reference are provided).

Corrections and additions to the geographic distribution of species listed in Maldonado-Ocampo et al. (2008)

The original distribution of 175 species was modified (Suppl. material 4), with 39 species having wider distributions (i.e., encompassing at least one additional hydrographic system than previously recorded), 128 species with more restricted distributions, and 8 species with wrong distributions. At the end of the checklist are

Table 2. Number of species by hydrographic system (HS) in Maldonado-Ocampo et al. (2008) compared to the present work.

HS	Number of species in Maldonado-Ocampo et al. (2008)	Number of species in the present work	Number of species in Maldonado-Ocampo et al. (2008) with distribution changes
Amazon	788	706	58
Orinoco	658	663	54
Magdalena-Cauca	213	220	40
Caribbean	186	223	42
Pacific	151	130	30

summarized the total number of each type of modification (addition or deletion) by hydrographic system.

A special treatment was implemented for the species of the genera *Astroblepus* and *Trichomycterus* that were originally described from Colombia. Most species of *Astroblepus* have restricted geographic distributions, being limited to portions of single river drainages at elevations above 1000 m (Schaefer et al. 2011). A similar scenario is also found for *Trichomycterus* species, which show high endemism and restricted geographic distributions to headwaters and streams of river systems (Fernández and Vari 2009, Ferrer and Malabarba 2013, DoNascimiento et al. 2014b). The taxonomic knowledge of the Colombian species of these genera and their respective geographic distributions is precarious. This uncertainty has resulted in misidentifications of specimens that ultimately result in misplacing species in different disjunct hydrographic zones, without any consideration of the ecological constraints for the geographic distribution of a certain taxonomic group or its biogeographic history. Based on these considerations, we circumscribed the geographic distribution of these species to the hydrographic zone that encompasses the river drainage from which the species were originally described.

Species deleted from the Colombian continental ichthyofauna

A total of 202 nominal species originally listed in Maldonado-Ocampo et al. (2008) was removed from the updated checklist of the freshwater fishes of Colombia (numerical distribution of deleted species by orders and families is presented in the checklist). These species were found to be absent from Colombian freshwaters or were recently synonymized with other species. Each individual case of species removal is commented (Suppl. material 5) following the format of Lasso et al. (2004).

Checklist of the native freshwater fishes of Colombia

Abbreviations: **DC** – described from Colombia. **EN** – endemic. **ET** – endangered and threatened species. **Amz** – Amazon River Basin. **Ori** – Orinoco River Basin. **Mag-Cau** – Magdalena-Cauca River Basin. **Pac** – Pacific slope rivers. **Car** – Caribbean slope rivers. Asterisk (*) denotes species newly recorded for Colombia after Maldonado-Ocampo et al. (2008). Two asterisks (**) indicate species inadvertently omitted in Maldonado-Ocampo et al. (2008). Plus (**+**) and minus (**-**) signs in the columns corresponding to individual hydrographic systems, indicate respectively, added or deleted presence in each hydrographic system, of species listed in Maldonado-Ocampo et al. (2008) with geographic distribution modified in the present checklist. **X** indicates unchanged presence in hydrographic systems already accounted in the above bibliographic reference.

Table ASD. Number and

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Myliobatiformes 11 spp (3 added and 2 deleted from 2008)									
Potamotrygonidae									
**Heliotrygon gomesi* Carvalho & Lovejoy, 2011				X					Lasso et al. (2013a)
Paratrygon aiereba (Müller & Henle, 1841)			X	X	X				Maldonado-Ocampo et al. (2006a) | Lasso et al. (2013a)
Plesiotrygon iwamae Rosa, Castello & Thorson, 1987				X					Lasso et al. (2010)
**Plesiotrygon nana* Carvalho & Ragno, 2011				X					Lasso et al. (2013a)
Potamotrygon constellata (Vaillant, 1880)				X					Bogotá-Gregory and Maldonado-Ocampo (2005)
Potamotrygon magdalenae (Duméril, 1865)	X	X	X			X		X	Duméril (1865) | Maldonado-Ocampo et al. (2006b) | MNHN A-2368
Potamotrygon motoro (Müller & Henle, 1841)			X	X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Potamotrygon orbignyi (Castelnau, 1855)			X	+	X				Lasso et al. (2013)
Potamotrygon schroederi Fernández-Yépez, 1958			X	X	X				Lasso et al. (2013)
**Potamotrygon scobina* Garman, 1913			X	X	X				Lasso et al. (2013) | Acosta-Santos et al. (2016)
Potamotrygon yepezi Castex & Castello, 1970			X					X	Ortega-Lara et al. (2012)
Osteoglossiformes 3 spp									
Osteoglossidae									
Arapaima gigas (Schinz 1822)			X	X					Mojica et al. (2005)
Osteoglossum bicirrhosum (Cuvier, 1829)			X	X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Osteoglossum ferreirai Kanazawa, 1966			X		X				Cala (1977)
Clupeiformes 10 spp (1 deleted from 2008)									
Pristigasteridae 4 spp									
Ilisha amazonica (Miranda Ribeiro, 1920)				X					Mojica et al. (2005)
Pellona castelnaeana Valenciennes, 1847				X	X				Correa (2003) | Maldonado-Ocampo (2001)
Pellona flavipinnis (Valenciennes, 1837)				X	X				Mojica et al. (2005) | Lasso et al. (2005) | ICN-MHN 733, 4144, 11309

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Pristigaster cayana Cuvier, 1829				X					Mojica et al. (2005)
Engraulidae 6 spp (1 deleted from 2008)									
Amazonsprattus scintilla Roberts, 1984					X				Maldonado-Ocampo and Bogotá-Gregory (2007)
Anchoviella guianensis (Eigenmann, 1912)				-	X				Galvis et al. (2007a)
Anchoviella jamesi (Jordan & Seale, 1926)				X	X				Kullander and Ferraris (2003)
Jurengraulis juruensis (Boulenger, 1898)				X					Mojica et al. (2005)
Lycengraulis batesii (Günther, 1868)				X	X				Mojica et al. (2005) | Kullander and Ferraris (2003)
Pterengraulis atherinoides (Linnaeus, 1766)					X				Galvis et al. (2007a)
Characiformes 644 spp (92 added and 93 deleted from 2008)									
Crenuchidae 28 spp (2 added and 2 deleted from 2008)									
Crenuchus spilurus Günther, 1863				X	X				Arbeláez et al. (2004) | Galvis et al. (2007a)
Poecilocharax weitzmani Géry, 1965				X	X				IAvH-P 10679
Ammocryptocharax elegans Weitzman & Kanazawa, 1976					X				Weitzman and Kanazawa (1976) | FMNH 80401 | USNM 210692, 214364
Ammocryptocharax minutus Buckup, 1993				X					Mojica et al. (2005)
Characidium boavistae Steindachner, 1915					+	X		+	Urbano-Bonilla et al. (2009); Ortega-Lara et al. (2012) | Villa-Navarro et al. (2006)
Characidium caucanum Eigenmann, 1912	X	X	X			X			Eigenmann (1912) | FMNH 56057 [ex CM 4847], 56058-60, 69546 | CAS 41275-77 [ex IU 12701-03] | USNM 79183
Characidium chupa Schultz, 1944					X			+	Urbano-Bonilla et al. (2009); Ortega-Lara et al. (2012)
Characidium etheostoma Cope, 1872				X					Mojica et al. (2005)
Characidium longum Taphorn, Montaña & Buckup, 2006					X				Lasso et al. (2009) | IAvH-P 2753, 13756, 13790
Characidium pellucidum Eigenmann, 1909				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Characidium phoxocephalum Eigenmann, 1912	X	X	X			X			Eigenmann (1912) | FMNH 56061 [ex CM 4851] | CAS 60254 [ex IU 12704]
Characidium pteroides Eigenmann, 1909				X	X				Maldonado-Ocampo et al. (2008) | Maldonado-Ocampo et al. (2006a)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Characidium roesseli Géry, 1965				X					Mojica et al. (2005)
Characidium sanctjohanni Dahl, 1960	X	X					X	-	Dahl (1960c) | Agudelo-Zamora et al. (2014)
Characidium steindachneri Cope, 1878				X	X				Urbano-Bonilla et al. (2009). | Bogotá-Gregory and Maldonado-Ocampo (2006a) | CAS-SU 50488, 50655
Characidium zebra Eigenmann, 1909				X	X				Arbeláez et al. (2004) | Maldonado-Ocampo (2001)
Elachocharax geryi Weitzman & Kanazawa, 1978					X				Weitzman and Kanazawa (1978)
**Elachocharax mitopterus* Weitzman, 1986				X					CZUT-IC 4071, 4086, 5106
Elachocharax pulcher Myers, 1927				X	X				Mojica et al. (2005) | Weitzman and Kanazawa (1978)
Klausewitzia Géry,1965				X					Bogotá-Gregory and Maldonado-Ocampo (2005)
Leptocharacidium omospilus Buckup, 1993					X				IAvH-P 13758
Melanocharacidium dispilomma Buckup, 1993				-	X				Buckup (1993)
**Melanocharacidium nigrum* Buckup, 1993				X					IAvH-P 8660, 8700, 8765, 8796, 8859, 9421
Melanocharacidium pectorale Buckup, 1993				X	X				Buckup (1993) | Mojica et al. (2005)
Microcharacidium eleotrioides (Géry, 1960)					X				Maldonado-Ocampo et al. (2008)
Microcharacidium gnomus Buckup, 1993					X				Buckup (1993)
Microcharacidium weitzmani Buckup, 1993					X				Buckup (1993)
Odontocharacidium aphanes (Weitzman & Kanazawa, 1977)				X					Buckup (1993)
Erythrinidae 4 spp (1 added and 1 deleted from 2008)									
Erythrinus erythrinus (Bloch & Schneider, 1801)				X	X				Eigenmann (1922) | Fowler (1945) | ICN-MHN 440, 3801
Hoplerythrinus unitaeniatus (Agassiz, 1829)				X	X				Fowler (1945) | Cala (1977)
**Hoplias curupira* Oyakawa & Mattox 2009					X				IAvH-P 1349, 2274, 2407, 2743
Hoplias malabaricus (Bloch, 1794)				X	X	X	X	X	Fowler (1943) | Steindachner (1879a) | Eigenmann (1922) | Maldonado-Ocampo et al. (2013b) | Regan (1914)
Parodontidae 9 spp (3 added from 2008)									
Parodon alfonsoi Londoño-Burbano, Román-Valencia & Taphorn, 2011	X	X				X			Londoño-Burbano et al. (2011)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Parodon apolinari Myers, 1930					X				Myers (1930)
Parodon atratoensis Londoño-Burbano, Román-Valencia & Taphorn, 2011	X	X						X	Londoño-Burbano et al. (2011)
Parodon buckleyi Boulenger, 1887				X					Londoño-Burbano et al. (2011)
Parodon caliensis Boulenger, 1895	X	X	X			X			Boulenger (1895)
Parodon magdalenensis Londoño-Burbano, Román-Valencia & Taphorn, 2011	X	X				X			Londoño-Burbano et al. (2011)
Parodon pongoensis (Allen, 1942)				X					Londoño-Burbano et al. (2011)
Parodon suborbitalis Valenciennes, 1850						-		X	Londoño-Burbano et al. (2011) | Eigenmann (1922)
Saccodon dariensis (Meek & Hildebrand, 1913)			X			X		X	Pavanelli and Starnes (2015)
Cynodontidae 7 spp									
Cynodon gibbus Spix & Agassiz, 1829				X	X				Mojica et al. (2005) | Toledo-Piza (2000a)
Cynodon septenarius Toledo-Piza, 2000					X				Lasso et al. (2005) | IAvH-P 1043, 1053, 3237
Hydrolycus armatus (Jardine & Schomburgk, 1841)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Maldonado-Ocampo et al. (2006a)
Hydrolycus scomberoides (Cuvier, 1816)				X					Mojica et al. (2005)
Hydrolycus tatauaia Toledo-Piza, Menezes & Santos, 1999					X				IAvH-P 9915
Hydrolycus wallacei Toledo-Piza, Menezes & Santos, 1999				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Maldonado-Ocampo et al. (2006a)
Rhaphiodon vulpinus Spix & Agassiz, 1829				X	X				Mojica et al. (2005) | Cala (1977)
Serrasalmidae 39 spp (1 added and 4 deleted from 2008)									
Catoprion mento (Cuvier, 1819)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Lasso et al. (2005) | IAvH-P 751, 779,814, 961, 1130, 1173, 1385, 2436, 4911, 5026, 5917, 11272, 12771 | ICN-MHN 5246, 5664
Colossoma macropomum (Cuvier, 1818)			X	X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Cala (1977) | IAvH-P 2031, 5898, 10549, 11601, 11607
Metynnis argenteus Ahl, 1923				X	X				Galvis et al. (2007b) | IAvH-P 1399, IAvH-P 11260, IAvH-P 13864

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Metynnis hypsauchen (Müller & Troschel, 1844)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Maldonado-Ocampo and Bogotá-Gregory (2007)
Metynnis lippincottianus (Cope, 1870)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Maldonado-Ocampo (2001)
Metynnis luna Cope, 1878				X	X				Correa (2003) | Maldonado-Ocampo (2001)
Myleus rhomboidalis (Cuvier, 1818)				X					Bogotá-Gregory and Maldonado-Ocampo (2005)
Myleus setiger Müller & Troschel, 1844				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Maldonado-Ocampo et al. (2006a)
Myleus torquatus (Kner, 1858)				X	X				Mojica (1999) | Maldonado-Ocampo (2001) | ICN-MHN 2557, 3426, 3838
Myloplus asterias (Müller & Troschel, 1844)				X	-				Correa (2003)
Myloplus rubripinnis (Müller & Troschel, 1844)				X	X				Mojica et al. (2005) | Cala (1977)
Myloplus schomburgkii (Jardine, 1841)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Cala (1977)
Mylossoma acanthogaster (Valenciennes, 1850)			X					X	Usma et al. (2002)
Mylossoma aureum (Spix & Agassiz, 1829)				X	X				Mojica et al. (2005)
Mylossoma duriventre (Cuvier, 1818)				X	X				Mojica et al. (2005) | Cala (1977)
Piaractus brachypomus (Cuvier, 1818)				X	X				Mojica et al. (2005) | Cala (1977)
Pristobrycon aureus (Spix & Agassiz, 1829)				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | ICN-MHN 5251
Pristobrycon calmoni (Steindachner, 1908)				X	X				Mojica et al. (2005)
Pristobrycon careospinus Fink & Machado-Allison, 1992				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Maldonado-Ocampo et al. (2006a)
Pristobrycon maculipinnis Fink & Machado-Allison, 1992				X					Correa (2003)
Pristobrycon striolatus (Steindachner, 1908)				X	X				Correa (2003) | Maldonado-Ocampo et al. (2006a)
Pygocentrus cariba (Humboldt & Valenciennes, 1821)					X				Maldonado-Ocampo (2001)
Pygocentrus nattereri Kner, 1858				X	X				Mojica et al. (2005)
Pygopristis denticulata (Cuvier, 1819)					X				Maldonado-Ocampo et al. (2006a)
Serrasalmus altuvei Ramírez, 1965				X	X				Correa (2003) | Maldonado-Ocampo (2001)
Serrasalmus compressus Jégu, Leão & Santos, 1991				X					Galvis et al. (2007b)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
**Serrasalmus eigenmanni* Norman, 1929				X					CZUT-IC 7334
Serrasalmus elongatus Kner, 1858				X					Mojica et al. (2005)
Serrasalmus gouldingi (Fink & Machado-Allison, 1992)				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | IAvH-P 262
Serrasalmus hollandi Eigenmann, 1915				X					Mojica et al. (2005)
Serrasalmus humeralis Valenciennes, 1850				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | ICN-MHN 5255, 6108
Serrasalmus irritans Peters, 1877				-	X				Maldonado-Ocampo (2001)
Serrasalmus maculatus Kner, 1858				X					Jégu and Dos Santos (2001)
Serrasalmus manueli (Fernández-Yépez & Ramírez, 1967)				X	X				Galvis et al. (2007b) | Maldonado-Ocampo (2001)
Serrasalmus medinai Ramírez, 1965				X	X				Mojica et al. (2005)
Serrasalmus nalseni Fernández-Yépez, 1969				X					Correa (2003)
Serrasalmus rhombeus (Linnaeus, 1766)				X	X				Mojica et al. (2005)
Serrasalmus sanchezi Géry, 1964				X					IAvH-P 10526-10528, 10539, 10554-10556, 10559, 11543-11552, 11585
Serrasalmus spilopleura Kner, 1858				X	X				Mojica et al. (2005) | Galvis et al. (2007a)
Hemiodontidae 14 spp (1 added and 1 deleted from 2008)									
Anodus elongatus Agassiz, 1829				X					Mojica et al. (2005)
Anodus orinocensis (Steindachner, 1887)					X				Zapata and Usma (2013) | CUZT-IC 3450, 4062
Hemiodus amazonum (Humboldt, 1821)				+	-				ICN-MHN 17168
Hemiodus argenteus Pellegrin, 1909				X	X				Galvis et al. (2007b) | Galvis et al. (2007a)
**Hemiodus atranalis* (Fowler, 1940)				X					IAvH-P 2389
Hemiodus gracilis Günther, 1864				-	X				Maldonado-Ocampo et al. (2006a)
Hemiodus immaculatus Kner, 1858				X	X				Galvis et al. (2007b) | Maldonado-Ocampo et al. (2006a)
Hemiodus microlepis Kner, 1858				X	X				Arbeláez et al. (2004) | Lasso et al. (2005) | IMCN 606
Hemiodus semitaeniatus Kner, 1858				X	X				Galvis et al. (2007b) | Cala (1977)
Hemiodus thayeria Böhlke, 1955				X	+				Böhlke (1955) | Galvis et al. (2007b) | Ortega-Lara (2016)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Hemiodus unimaculatus (Bloch, 1794)				X	X				Galvis et al. (2007b) | Cala (1977)
Hemiodus vorderwinkleri (Géry, 1964)				X					Géry (1964b)
Argonectes longiceps (Kner, 1858)				X	X				Maldonado-Ocampo et al. (2006a) | IAvH-P 5746
Bivibranchia fowleri (Steindachner, 1908)				X	X				Galvis et al. (2007b) | Maldonado-Ocampo et al. (2006a)
Anostomidae 43 spp (4 added and 14 deleted from 2008)									
Abramites eques (Steindachner, 1878)	X	X	X			X			Steindachner (1878) | BMNH 1895.5.17.155-156 | NMW 69549, 69548, 69550
Abramites hypselonotus (Günther, 1868)				X	X				Lasso et al. (2005) | Mojica et al. (2005) | IAvH-P 3411
**Anostomoides laticeps* (Eigenmann, 1912)				X					XIII Congreso Colombiano de Ictiología
Anostomus anostomus (Linnaeus, 1758)				X	X				Fowler (1943) | Cala (1977) | IAvH-P 1014, 2830
Anostomus ternetzi Fernández-Yépez, 1949				-	X				Maldonado-Ocampo et al. (2006a)
Gnathodolus bidens Myers, 1927					X				Maldonado-Ocampo et al. (2006a)
Laemolyta fernandezi Myers, 1950					X				Galvis et al. (2007a)
Laemolyta garmani (Borodin, 1931)				X					Mojica et al. (2005)
Laemolyta proxima (Garman, 1890)				X					Mojica et al. (2005)
Laemolyta taeniata (Kner, 1858)				X	X				Mautari and Menezes (2006) | Mojica et al. (2005)
Leporellus vittatus (Valenciennes, 1850)					X	X		+	Steindachner (1880) | Garavello and Britski (2003) | Maldonado-Ocampo et al. (2005) | Dahl (1955)
Leporinus affinis Günther, 1864				X					Garavello and Britski (2003)
Leporinus agassizi Steindachner, 1876				X					Mojica et al. (2005)
**Leporinus amazonicus* Santos & Zuanon, 2008				X					XIII Congreso Colombiano de Ictiología
Leporinus aripuanensis Garavello & Santos, 1981				X					Mojica et al. (2005)
Leporinus bimaculatus Castelnau, 1855				X					Mojica et al. (2005)
Leporinus boehlkei Garavello, 1988	X	X			X				Garavello (1988) | ANSP 136487, 135432-33, 136489, 138803, 140316 | MZUSP 28061
Leporinus brunneus Myers, 1950				X	X				Galvis et al. (2007b) | Maldonado-Ocampo et al. (2006a)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Leporinus enyae Burns, Chatfield, Birindelli & Sidlauskas, 2017					X				Burns et al. (2017)
Leporinus fasciatus (Bloch, 1794)				X	X				Correa (2003) | Maldonado-Ocampo et al. (2006a)
Leporinus friderici (Bloch, 1794)				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Leporinus granti Eigenmann, 1912					X				Lasso et al. (2009) | ICN-MHN 948, 1301
Leporinus jamesi Garman, 1929				X					Garavello et al. (2014)
Leporinus klausewitzi Géry, 1960				X					Galvis et al. (2007b)
Leporinus moralesi Fowler, 1942				X					Bogotá-Gregory and Maldonado-Ocampo (2005)
Leporinus nattereri Steindachner, 1876				X	X				Maldonado-Ocampo et al. (2006a) | IAvH-P 8822
Leporinus niceforoi Fowler, 1943	X	X		X					Fowler (1943) | ANSP 70491, 70492
Leporinus ortomaculatus Garavello, 2000					X				IAvH-P 13843
**Leporinus parae* Eigenmann, 1907				X	X				IAvH-P 1822, 12770, 13003, 13011
Leporinus subniger Fowler, 1943				X					Fowler (1943) | IAvH-P 3430-3432 | ANSP 70493, 70494
Leporinus striatus Kner, 1858				+	X	X	X	X	Galvis et al. (2007b) | Urbano-Bonilla et al. (2009). | Steindachner (1879a) | Eigenmann (1922) | Regan (1914)
Leporinus wolfei Fowler, 1940				X					Mojica et al. (2005)
Leporinus y-ophorus Eigenmann, 1922					X				Eigenmann (1922) | CAS 61680
Megaleporinus muyscorum (Steindachner, 1900)	X	X	X			X		X	Steindachner (1900) | Eigenmann (1922)
Megaleporinus trifasciatus (Steindachner, 1876)				X					Mojica et al. (2005)
Pseudanos trimaculatus Kner, 1858				X					Mojica et al. (2005)
Pseudanos winterbottomi Sidlauskas & Santos, 2005					X				Maldonado-Ocampo et al. (2006a)
Rhytiodus argenteofuscus Kner, 1858				X					Mojica et al. (2005)
Rhytiodus microlepis Kner, 1858				X					Mojica et al. (2005)
Schizodon corti Schultz, 1944								X	Ortega-Lara et al. (2012)
Schizodon fasciatus Spix & Agassiz, 1829				X					Mojica et al. (2005)
Schizodon scotorhabdotus Sidlauskas, Garavello & Jellen, 2007					X				Sidlauskas et al. (2007)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Synaptolaemus latofasciatus (Steindachner, 1910)				X	X				Maldonado-Ocampo et al. (2006a) | CZUT-IC 4092
Chilodontidae 5 spp (1 added and 1 deleted from 2008)									
Caenotropus labyrinthicus (Kner, 1858)				X	X				Cala (1977) | Vari et al. (1995)
Caenotropus mestomorgmatos Vari, Castro & Raredon, 1995				X	+				Bogotá-Gregory and Maldonado-Ocampo (2006a) | IAvH-P 281, 4098, 4101
**Caenotropus schizodon* Scharcansky & Lucena, 2007				X					CZUT-IC 12280
Chilodus gracilis Isbrücker & Nijssen, 1988				X	+				Bogotá-Gregory and Maldonado-Ocampo (2006a) | USNM 190300 ,232361, 263288, 431461
Chilodus punctatus Müller & Troschel, 1844				X	X				Mojica et al. (2005) | Cala (1977)
Curimatidae 47 spp (2 added and 2 deleted from 2008)									
Curimata aspera (Günther, 1868)				X					Mojica et al. (2005)
Curimata cerasina Vari, 1984				-	X				CZUT-IC 11494
Curimata cisandina (Allen, 1942)				X					Mojica et al. (2005)
Curimata cyprinoides (Linnaeus, 1766)				X					Bogotá-Gregory and Maldonado-Ocampo (2006a)
Curimata incompta Vari, 1984				X	X				Mojica et al. (2005) | Maldonado-Ocampo (2001) | IAvH-P 4370
Curimata mivartii (Steindachner, 1878)	X	X	X			X		+	Steindachner (1878) | Vari (1989a)
Curimata ocellata (Eigenmann & Eigenmann, 1889)				X					Mojica et al. (2005)
Curimata roseni Vari, 1989				X					Bogotá-Gregory and Maldonado-Ocampo (2006a)
Curimata vittata (Kner, 1858)				X	X				Vari (1989a) | Maldonado-Ocampo (2001)
Curimatella alburna (Müller & Troschel, 1844)				X					Arbeláez et al. (2004)
Curimatella dorsalis (Eigenmann & Eigenmann, 1889)				X	X				Mojica et al. (2005); Maldonado-Ocampo (2001)
Curimatella immaculata (Fernández-Yépez, 1948)				X	X				Vari (1992b) | Bogotá-Gregory and Maldonado-Ocampo (2006a)
Curimatella meyeri (Steindachner, 1882)				X					Mojica et al. (2005)
Curimatopsis crypticus Vari, 1982					X				IAvH-P 13266
Curimatopsis evelynae Géry, 1964					X				Géry (1964a)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Curimatopsis macrolepis (Steindachner, 1876)				X	X				Vari (1982)
**Curimatopsis microlepis* Eigenmann & Eigenmann, 1889				X					CZUT-IC 4073, 4075
Cyphocharax abramoides (Kner, 1858)					X				Vari (1992a)
Cyphocharax aspilos Vari, 1992								X	Ortega-Lara et al. (2012)
Cyphocharax festivus Vari, 1992				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Maldonado-Ocampo et al. (2006a)
Cyphocharax leucostictus (Eigenmann & Eigenmann, 1889)				X					Galvis et al. (2007b)
Cyphocharax magdalenae (Steindachner, 1878)						X		X	Steindachner (1878) | Eigenmann (1922) | Vari (1992a)
Cyphocharax multilineatus (Myers, 1927)				X	X				Galvis et al. (2007b) | Galvis et al. (2007a)
Cyphocharax nigripinnis Vari, 1992				X					Vari (1992a)
**Cyphocharax notatus* (Steindachner, 1908)				X					CZUT-IC 10874
Cyphocharax oenas Vari, 1992					X				Maldonado-Ocampo et al. (2006a)
Cyphocharax pantostictos Vari & Barriga, 1990				X					IAvH-P 8354-8357
Cyphocharax spiluropsis (Eigenmann & Eigenmann, 1889)				X					Arbeláez et al. (2004)
Cyphocharax spilurus (Günther, 1864)				X	X				Mojica et al. (2005) | Cala (1977)
Potamorhina altamazonica (Cope, 1878)				X	X				Vari (1984)
Potamorhina laticeps (Valenciennes, 1850)								X	Ortega-Lara et al. (2012)
Potamorhina latior (Spix & Agassiz, 1829)				X					Vari (1984)
Potamorhina pristigaster (Steindachner, 1876)				X					Bogotá-Gregory and Maldonado-Ocampo (2006a)
Psectrogaster amazonica Eigenmann & Eigenmann, 1889				X					Mojica et al. (2005)
Psectrogaster ciliata (Müller & Troschel, 1844)					X				Vari (1989b)
Psectrogaster essequibensis (Günther, 1864)				X					Mojica et al. (2005)
Psectrogaster rhomboides Eigenmann & Eigenmann, 1889				X					Mojica et al. (2005)
Psectrogaster rutiloides (Kner, 1858)				X					Vari (1989b)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Pseudocurimata lineopunctata (Boulenger, 1911)							X	X	Boulenger (1911) | Eigenmann (1922)
Pseudocurimata patiae (Eigenmann, 1914)	X	X	X				X		Eigenmann et al. (1914) | FMNH 56554, 56555 | CAS 60622 [ex IU 13055]
Steindachnerina argentea (Gill, 1858)				-	X				Eigenmann (1922)
Steindachnerina atratoensis (Eigenmann, 1912)	X	X						X	Eigenmann (1912) | FMNH 56024 [ex CM 4814a], 56043, 71308 | CAS 44218 [ex IU 12676] | MCZ 30933 | USNM 79192
Steindachnerina bimaculata (Steindachner, 1876)				X					Vari (1991)
Steindachnerina dobula (Günther, 1868)				X					Vari (1991)
Steindachnerina guentheri (Eigenmann & Eigenmann, 1889)				X	X				Arbeláez et al. (2004) | Vari (1991)
Steindachnerina hypostoma (Boulenger, 1887)				X					Mojica et al. (2005)
Steindachnerina pupula Vari, 1991					X				Vari (1991)
Prochilodontidae 10 spp									
Ichthyoelephas longirostris (Steindachner, 1879)	X	X	X			X		+	Steindachner (1879b) | Castro and Vari (2004)
Prochilodus magdalenae Steindachner, 1879	X	X	X			X		X	Steindachner (1879a) | Eigenmann (1922)
Prochilodus mariae Eigenmann, 1922					X				Eigenmann (1922)
Prochilodus nigricans Spix & Agassiz, 1829				X					Fowler (1943)
Prochilodus reticulatus Valenciennes, 1850			X					X	Ortega-Lara et al. (2012)
Prochilodus rubrotaeniatus Jardine & Schomburgk, 1841				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Urbano-Bonilla et al. (2009). | IAvH-P 5844, 6195, 10879, 10880, 12764
Semaprochilodus insignis (Jardine & Schomburgk, 1841)				X	X				Mojica et al. (2005) | Castro and Vari (2004)
Semaprochilodus kneri (Pellegrin, 1909)				X	X				Correa (2003) | Maldonado-Ocampo et al. (2006a)
Semaprochilodus laticeps (Steindachner, 1879)					X				Cala (1977) | Castro and Vari (2004)
Semaprochilodus taeniurus (Valenciennes, 1821)				X					Correa (2003)
Lebiasinidae 30 spp (3 added and 10 deleted from 2008)									
Lebiasina astrigata Regan, 1913								X	Maldonado-Ocampo et al. (2006b)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Lebiasina chocoensis Ardila Rodríguez, 2010	X	X						X	Ardila Rodríguez (2010)
Lebiasina chucuriensis Ardila Rodríguez, 2001	X	X				X			Ardila Rodríguez (2001) | CAR 150424, 150423, 150425
Lebiasina colombia Ardila Rodríguez, 2008	X	X						X	Ardila Rodríguez (2008b) | CAR 190, 191, 192 | ICN-MHN 5314
Lebiasina elongata (Boulenger, 1887)				X					Galvis et al. (2007b)
Lebiasina erythrinoides (Valenciennes, 1850)				X	X	X	X	+	Maldonado-Ocampo et al. (2005) | Lasso et al. (2005) | Bogotá-Gregory and Maldonado-Ocampo (2005) | Ortega-Lara et al. (2012) | IAvH-P 573
Lebiasina festae Boulenger, 1899							X	X	Maldonado-Ocampo et al. (2013b) | Fowler (1939)
Lebiasina floridablancaensis Ardila Rodríguez, 1994	X	X				X			Ardila Rodríguez (1994) | CAR 15-04-01 | MBUCV-V-26713 [ex CAR 15-04-02 and 03] | MHNUNC 1837
Lebiasina multimaculata Boulenger, 1911	X	X					X		Boulenger (1911) | BMNH 1910.7.11.167-169
Lebiasina narinensis Ardila Rodríguez, 2002	X	X				-	X		Ardila Rodríguez (2002) | ICN-MHN 2340, 2340-1
Lebiasina ortegai Ardila Rodríguez, 2008	X	X				X			Ardila Rodríguez (2008a) | CAR 157, 265 | CZUT-IC 2586 | IAvH-P 9875 | IMCN 4200, 4201
Lebiasina panamensis Gill, 1877							X	X	Eigenmann (1922) | Fowler (1944)
Copeina guttata (Steindachner, 1876)				X					Steindachner (1876)
Copella eigenmanni (Regan, 1912)					X				Regan (1912d)
Copella nattereri (Steindachner, 1876)				X	X				Arbeláez et al. (2004) | Galvis et al. (2007a)
Copella vilmae Géry, 1963				X					Mojica et al. (2005)
Pyrrhulina brevis Steindachner, 1876				X	X				Correa (2003) | Urbano-Bonilla et al. (2009).
Pyrrhulina eleanorae Fowler, 1940					X				Maldonado-Ocampo et al. (2008)
Pyrrhulina filamentosa Valenciennes, 1847					X				Lasso et al. (2005) | IAvH-P 1589, 3405
Pyrrhulina laeta (Cope, 1872)				X					Arbeláez et al. (2004)
Pyrrhulina lugubris Eigenmann, 1922				-	X				Eigenmann (1922) | CAS 78888 [ex IU 15041a], 78888 [ex IU 15041]
Pyrrhulina obermulleri Myers, 1926				X					Mojica et al. (2005)
Pyrrhulina semifasciata Steindachner, 1876				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | USNM 311003
**Nannostomus digrammus* (Fowler, 1913)				X					IAvH-P 10688, 10692, 10694

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Nannostomus eques Steindachner, 1876				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Nannostomus harrisoni (Eigenmann, 1909)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Maldonado-Ocampo et al. (2006a)
Nannostomus marginatus Eigenmann, 1909				X	X				Weitzman (1966) | Lasso et al. (2005)
Nannostomus marilynae Weitzman & Cobb, 1975				X	X				Weitzman and Cobb (1975)
Nannostomus trifasciatus Steindachner, 1876				X	X				Arbeláez et al. (2004) | Galvis et al. (2007a)
Nannostomus unifasciatus Steindachner, 1876				X	X				Arbeláez et al. (2004)Maldonado-Ocampo et al. (2006a)
Ctenoluciidae 7 spp									
Boulengerella cuvieri (Agassiz, 1829)				X	X				Vari (1995)
Boulengerella lateristriga (Boulenger, 1895)				X	X				Correa (2003) | Maldonado-Ocampo et al. (2006a)
Boulengerella lucius (Cuvier, 1816)				-	X				Maldonado-Ocampo et al. (2006a)
Boulengerella maculata (Valenciennes, 1850)				X	X				Vari (1995) | Cala (1977)
Boulengerella xyrekes Vari, 1995				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Maldonado-Ocampo et al. (2006a) | IAvH-P 1789, 2044, 2851
Ctenolucius beani (Fowler, 1907)							X	X	Fowler (1907) | Vari (1995)
Ctenolucius hujeta (Valenciennes, 1850)						X		X	Vari (1995) | Bean (1908)
Acestrorhynchidae 18 spp (1 added and 1 deleted from 2008)									
Acestrorhynchus abbreviatus (Cope, 1878)				X					Galvis et al. (2007b)
Acestrorhynchus falcatus (Bloch, 1794)				X	X				Galvis et al. (2007b) | Eigenmann (1922)
Acestrorhynchus falcirostris (Cuvier, 1819)				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Acestrorhynchus grandoculis Menezes & Géry, 1983					X				Maldonado-Ocampo et al. (2006a)
Acestrorhynchus heterolepis (Cope, 1878)				X	X				Lasso et al. (2005) | Galvis et al. (2007b) | IAvH-P 834, 918, 2157, 10772
Acestrorhynchus microlepis (Schomburgk, 1841)				X	X				Mojica et al. (2005) | Toledo-Piza and Menezes (1996) | Cala (1977)
Acestrorhynchus minimus Menezes, 1969					X				Maldonado-Ocampo et al. (2006a)
Acestrorhynchus nasutus Eigenmann, 1912					X				Lasso et al. (2009) | IAvH-P 1124, 9908, 9909, 9910, 9911, 9912, 9913, 9914, 13688, 13797, 13875 | ICN-MHN 1280

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Gnathocharax steindachneri Fowler, 1913					X				Cala (1977)
Heterocharax macrolepis Eigenmann, 1912				X	X				Toledo-Piza (2000b) | IAvH-P 10658
**Heterocharax virgulatus* Toledo-Piza, 2000					X				IAvH-P 14091
Hoplocharax goethei Géry, 1966					X				IAvH-P 15984
Lonchogenys ilisha Myers, 1927				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Gilbertolus alatus (Steindachner, 1878)	X	X				X		+	Steindachner (1878) | Eigenmann (1922)
Gilbertolus atratoensis Schultz, 1943	X	X						X	Schultz (1943) | USNM 76976, 120170
Gilbertolus maracaiboensis Schultz, 1943								X	Ortega-Lara et al. (2012)
Roestes molossus (Kner, 1858)				X					Prada-Pedreros (1997)
Roestes ogilviei (Fowler, 1914)				X					Galvis et al. (2007b)
Characidae 325 spp (68 added and 51 deleted from 2008)									
Brachychalcinus copei (Steindachner, 1882)				X					Mojica et al. (2005)
Brachychalcinus nummus Böhlke, 1958				X					Bogotá-Gregory and Maldonado-Ocampo (2005)
Brachychalcinus orbicularis (Valenciennes, 1850)				X	X				Mojica et al. (2005) | ICN-MHN 1309 | 824, 839, 862, 865
Gymnocorymbus bondi (Fowler, 1911)					X				Benine et al. (2015)
Gymnocorymbus thayeri Eigenmann, 1908				X	-				Fowler (1945) | Galvis et al. (2007a)
Poptella brevispina Reis, 1989					X				IAvH-P 4382
Poptella compressa (Günther, 1864)				+	X				Mojica et al. (2005) | Maldonado-Ocampo and Bogotá-Gregory (2007)
Poptella longipinnis (Popta, 1901)					X				Maldonado-Ocampo et al. (2013a)
Stethaprion erythrops (Cope, 1870)				X					Galvis et al. (2007b)
Stichonodon insignis (Steindachner, 1876)				X					Mojica et al. (2005)
Parastremma album Dahl, 1960	X	X					X		Dahl (1960c) | ICN-MHN 147, 147a
Parastremma pulchrum Dahl, 1960	X	X					X	-	Dahl (1960c) | ICN-MHN 204
Parastremma sadina Eigenmann, 1912	X	X					X	X	Eigenmann (1912) | FMNH 56022 [ex CM 4812], 56023, 69678 | CAS 57600 [ex IU 12675] | USNM 79225
Acestrocephalus anomalus (Steindachner, 1880)	X	X	X			X			Steindachner (1880) | NMW 57983

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Acestrocephalus boehlkei Menezes, 1977				X					Galvis et al. (2007b)
Acestrocephalus sardina (Fowler, 1913)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Lasso et al. (2005) | IAvH-P 4092-4093, 4793-4796,5851,12001, 12025, 12026, 12119
Charax condei (Géry & Knöppel, 1976)				X	X				Mojica et al. (2005)
Charax metae Eigenmann, 1922					X				Eigenmann (1922) | CAS 41300 [ex IU 15027], 69117 [ex IU 15027] | FMNH 55145 | IAvH-P 3566, 3567, 3569, 3571, 3573, 3574, 7732 | SU 60707 [ex IU 15028] | UMMZ 160226 | USNM 83631 [ex IU 15027]
Charax michaeli Lucena, 1989				X					Mojica et al. (2005)
Charax niger Lucena, 1989				X					Mojica et al. (2005)
**Charax notulatus* Lucena, 1987					X				IAvH-P 7521, 13028, 13073
Charax tectifer (Cope, 1870)				X					Arbeláez et al. (2004)
Cynopotamus amazonus (Günther, 1868)				X					Mojica et al. (2005)
Cynopotamus atratoensis (Eigenmann, 1907)	X	X	X					X	Eigenmann and Ogle (1907) | USNM 1664, 306567 [ex USNM 1664]
Cynopotamus bipunctatus Pellegrin, 1909					X				Urbano-Bonilla et al. (2009).
Cynopotamus magdalenae (Steindachner, 1879)	X	X	X			X			Steindachner (1879a) | NMW 62501-02, 62504-05, 77769
Cynopotamus venezuelae (Schultz, 1944)								X	Ortega-Lara et al. (2012)
Exodon paradoxus Müller & Troschel, 1844					X				Cala (1977)
Galeocharax gulo (Cope, 1870)				X					Mojica et al. (2005)
**Phenacogaster maculoblonga* de Lucena & Malabarba, 2010					X				CZUT-IC 9680
**Phenacogaster napoatilis* de Lucena & Malabarba, 2010				X					CZUT-IC 9008
Phenacogaster pectinata (Cope, 1870)				X					Mojica et al. (2005)
**Phenacogaster prolata* de Lucena & Malabarba, 2010					X				CZUT-IC 7223
Priocharax pygmaeus Weitzman & Vari, 1987	X	X		X					Weitzman and Vari (1987) | NRM 15048 | MBUCV-V-15342 | MZUSP 36498 | NRM 17593 | USNM 278479
Roeboides affinis (Günther, 1868)				X	X				Lucena (2007)
Roeboides araguaito Lucena, 2003					X				Lucena (2003)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Roeboides dayi (Steindachner, 1878)						X	X	X	Steindachner (1878) | Maldonado-Ocampo et al. (2013b)
Roeboides dientonito Schultz, 1944					X			+	Lasso et al. (2005) | Ortega-Lara et al. (2012) | IAvH-P 2935, 2988, 3329-3332, 4906, 9497, 13083, 13169, 13185, 13198, 13216, 13236, 13249, 13278, 13296, 13376
Roeboides myersii Gill, 1870				X	X				Mojica et al. (2005)
Roeboides occidentalis Meek & Hildebrand, 1916						-	X	-	Maldonado-Ocampo et al. (2013b)
Bario steindachneri (Eigenmann, 1893)				X					Galvis et al. (2006)
Hemigrammus aguaruna Lima, Correa & Ota, 2016				X					Lima et al. (2016) | Galvis et al. (2006)
Hemigrammus analis Durbin, 1909				X	X				Arbeláez et al. (2004) | Maldonado-Ocampo (2001)
Hemigrammus barrigonae Eigenmann & Henn, 1914					X				Eigenmann and Henn (1914) | AMNH 5320 | CAS 44368 [ex IU 13423], 44369 [ex IU 13424] | IAvH-P 3633
Hemigrammus bellottii (Steindachner, 1882)				X	X				Mojica et al. (2005) | Cala (1977) | IAvH-P 10304, 10307
Hemigrammus bleheri Géry & Mahnert, 1986					X				Géry and Mahnert (1986)
Hemigrammus coeruleus Durbin, 1908				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | ICN-MHN 5065
**Hemigrammus geisleri* Zarske & Géry, 2007				X	X				CZUT-IC 4400, 5097, 8655, 8851, 8933, 8954, 9099, 9245, 9993, 14642, 16138, 16309, 16837, 16934, MPUJ 306, 1232, 1234, 1237, 1357, 4378, 4392, 10804
Hemigrammus gracilis (Lütken, 1875)				X	X				Maldonado-Ocampo (2001) | Fowler (1945) | IAvH-P 8735, 8763
Hemigrammus hyanuary Durbin, 1918				X	X				Castro (1987a) | Lasso et al. (2005) | ICN-MHN 2787
Hemigrammus levis Durbin, 1908				X	-				Correa (2003) | Maldonado-Ocampo et al. (2006a)
Hemigrammus luelingi Géry, 1964				X					Mojica et al. (2005)
Hemigrammus lunatus Durbin, 1918				X					Mojica et al. (2005)
Hemigrammus melanochrous Fowler, 1913				X					Correa (2003)
Hemigrammus micropterus Meek, 1907					X				Maldonado-Ocampo et al. (2006a)
Hemigrammus microstomus Durbin, 1918				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Cala (1977) | IAvH-P 2605 | IICN-MHN 4273
Hemigrammus newboldi (Fernández-Yépez, 1949)				X	X				Maldonado-Ocampo (2001) | CZUT-IC 7204, 7250, 14763

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Hemigrammus ocellifer (Steindachner 1882)				X					Mojica (1999) | CIACOL 2327, CZUT-IC 18072
Hemigrammus pretoensis Géry, 1965				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | USNM 216881 | ICN-MHN: 16850-16851
Hemigrammus pulcher Ladiges, 1938				X					Mojica et al. (2005)
Hemigrammus rhodostomus Ahl, 1924				X	X				Galvis et al. (2007b) | Cala (1977)
Hemigrammus rubrostriatus Zarske, 2015	X	X			X				Zarske (2015)
Hemigrammus schmardae (Steindachner, 1882)				X	X				Arbeláez et al. (2004) | Maldonado-Ocampo et al. (2006a)
Hemigrammus stictus (Durbin, 1909)				-	X				Cala (1977)
Hemigrammus unilineatus (Gill, 1858)				X	X				Galvis et al. (2007b) | Cala (1977)
Hemigrammus vorderwinkleri Géry, 1963				X	X				Correa (2003) | Maldonado-Ocampo et al. (2006a)
**Hemigrammus yinyang* Lima & Sousa, 2009				X					CZUT-IC 4323, 4467, 4553, 4857, MPUJ 12525, 12623-12631
Hyphessobrycon acaciae García-Alzate, Román-Valencia & Prada-Pedreros, 2010	X	X			X				García-Alzate et al. (2010a) | MPUJ 5683, 393 | IUQ 2795, 2433, 2492, 2793
Hyphessobrycon agulha Fowler, 1913				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | IAvH-P 8331-8332, 8334, 8336-8344, 8346-8350, 8728, 8794, 8888, 8919, 8941, 8953, 8973, 8989, 9012, 9025, 9046, 9071, 9096, 9121, 9407, 11175-11178
Hyphessobrycon amaronensis García-Alzate, Román-Valencia & Taphorn, 2010	X	X		X					García-Alzate et al. (2010b) | IUQ 2286
Hyphessobrycon bentosi Durbin, 1908				X	-				Bogotá-Gregory and Maldonado-Ocampo (2005)
Hyphessobrycon chocoensis García-Alzate, Román-Valencia & Taphorn, 2013	X	X					X		García-Alzate et al. (2013) | IUQ 3035 | AUM 55075 | IUQ 2274, 2275, 3036, 3044
Hyphessobrycon columbianus Zarske & Géry, 2002	X	X						X	Zarske and Géry (2002) | MTDF 25497, 25498
Hyphessobrycon condotensis Regan, 1913	X	X					X		Regan (1913) | BMNH 1913.10.1.19-21
Hyphessobrycon copelandi Durbin, 1908				X					Mojica et al. (2005)
Hyphessobrycon diancistrus Weitzman, 1977					X				Weitzman (1977) | USNM 216607, 216606 | BMNH 1977.1.12.1-2 | MZUSP 13179-80
**Hyphessobrycon dorsalis* Zarske, 2014					X				IAvH-P 1032, 2315

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
**Hyphessobrycon epicharis* Weitzman & Palmer, 1997				X					CZUT-IC 4171, 5098
Hyphessobrycon erythrostigma (Fowler, 1943)				X					Weitzman and Palmer (1997)
Hyphessobrycon gracilior Géry, 1964				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | ICN-MHN 4277
**Hyphessobrycon heterorhabdus* (Ulrey, 1894)				X					García-Alzate et al. (2008)
Hyphessobrycon klausanni García-Alzate, Urbano-Bonilla & Taphorn, 2017	X	X			X				García-Alzate et al. (2017)
Hyphessobrycon loretoensis Ladiges, 1938				X					ICN-MHN 16814, 16846-16848
Hyphessobrycon mavro García-Alzate, Román-Valencia & Prada-Pedreros, 2010	X	X			X				García-Alzate et al. (2010a) | IUQ 2791, 1964 | IMCN 3751
Hyphessobrycon melazonatus Durbin, 1908				X					Castro and Arboleda (1988) | ICN-MHN 16855-16856
Hyphessobrycon metae Eigenmann & Henn, 1914					X				Eigenmann and Henn (1914)
Hyphessobrycon minimus Durbin, 1909					X				Maldonado-Ocampo et al. (2008)
Hyphessobrycon natagaima García-Alzate, Taphorn, Román-Valencia & Villa-Navarro, 2015	X	X				X			García-Alzate et al. (2015b)
Hyphessobrycon niger García-Alzate, Román-Valencia & Prada-Pedreros, 2010	X	X			X				García-Alzate et al. (2010a) | MPUJ 5657, 5039 | IUQ 2794
Hyphessobrycon ocasoensis García-Alzate & Román-Valencia, 2008	X	X				X			García-Alzate and Román-Valencia (2008)
Hyphessobrycon oritoensis García-Alzate, Román-Valencia & Taphorn, 2008	X	X		X					García-Alzate et al. (2008) | IUQ 1574, 129, 1575 | MBUCV-V 33737 | MCGN 55844
**Hyphessobrycon otrynus* Benine & Lopes, 2008					X				Ota et al. (2015)
Hyphessobrycon peruvianus Ladiges, 1938				X					Mojica et al. (2005)
Hyphessobrycon poecilioides Eigenmann, 1913	X	X	X			X	-		Eigenmann (1913) | CAS 77396 [ex IU 12850] | FMNH 56290 [ex CM 5091], 56291, 75150 | USNM 79214
Hyphessobrycon proteus Eigenmann, 1913	X	X				X		X	Eigenmann (1913) | García-Alzate et al. (2015b) | CAS 57603 [ex IU 12858], 60478-83 [ex IU 12852-57] | CIUA 295, 296 | FMNH 56293 [ex CM 5094], 56294-99, 56381-82, 69778 | SU 22754 | USNM 79215, 167819.
Hyphessobrycon saizi Géry, 1964	X	X			X				Géry (1964a) | USNM 198647 | ZMA 114206

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Hyphessobrycon sebastiani García-Alzate, Román-Valencia & Taphorn, 2010	X	X					X		García-Alzate et al. (2010c)
Hyphessobrycon sovichthys Schultz, 1944								X	Ortega-Lara et al. (2012)
Hyphessobrycon sweglesi (Géry, 1961)	X	X		-	X				Géry (1961) | USNM 196090, IAvH-P 9517, 11276
Hyphessobrycon taguae García-Alzate, Román-Valencia & Taphorn, 2010	X	X		X	X				García-Alzate et al. (2010b) | García-Alzate et al. (2010a) | IUQ 2288
Hyphessobrycon tukunai Géry, 1965				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | ICN-MHN 4278
Moenkhausia browni Eigenmann, 1909				X	X				Galvis et al. (2007b) | Maldonado-Ocampo (2001)
Moenkhausia ceros Eigenmann, 1908					X				Maldonado-Ocampo et al. (2006a)
Moenkhausia chrysargyrea (Günther, 1864)				X	X				Maldonado-Ocampo (2001) | IAvH-P 8652, 8690, 8725, 8766, 8797, 8830, 8860, 8914
Moenkhausia collettii (Steindachner, 1882)				X	X				Correa (2003) | Cala (1977)
Moenkhausia comma Eigenmann, 1908				X					Mojica et al. (2005)
Moenkhausia copei (Steindachner, 1882)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Maldonado-Ocampo et al. (2004) | ICN-MHN 11028, 11130
Moenkhausia cotinho Eigenmann, 1908				X	X				Galvis et al. (2007b) | Maldonado-Ocampo and Bogotá-Gregory (2007)
Moenkhausia dichroura (Kner, 1858)				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Moenkhausia eigenmanni Géry, 1964	X	X			X				Géry (1964a) | ANSP 112249, 139712 | ICN-MHN 17133 | MNHN 1980-1445 | USNM 198640
Moenkhausia grandisquamis (Müller & Troschel, 1845)				X	X				Mojica (1999) | Maldonado-Ocampo et al. (2006a) | ICN-MHN 3838, 6035, 6091
**Moenkhausia hysterosticta* Lucinda, Malabarba & Benine, 2007					X				CZUT-IC 9821, MPUJ 4387, 4468
Moenkhausia intermedia Eigenmann, 1908				X	X				Galvis et al. (2007b) | Maldonado-Ocampo et al. (2006a)
Moenkhausia jamesi Eigenmann, 1908					X				Maldonado-Ocampo et al. (2006a)
**Moenkhausia justae* Eigenmann, 1908					X				IAvH-P 847
**Moenkhausia latissima* Eigenmann, 1908				X					IAvH-P 11014-11015
Moenkhausia lepidura (Kner, 1858)				X	X				Arbeláez et al. (2004) | Maldonado-Ocampo et al. (2006a)
Moenkhausia megalops (Eigenmann, 1907)				X	X				Arbeláez et al. (2004) | Maldonado-Ocampo et al. (2006a)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Moenkhausia melogramma Eigenmann, 1908				X	-				Arbeláez et al. (2004)
Moenkhausia metae Eigenmann, 1922	X	X			X				Eigenmann (1922) | CAS 55610 [ex IU 15026a], 55609 [ex IU 15026], 55608 [ex IU 13951] | FMNH 55214 | IAvH-P 9177
**Moenkhausia mikia* Marinho & Langeani, 2010				X					CZUT-IC 3498, 3555, 3584, 4910, 4918, 5104, 8069
Moenkhausia oligolepis (Günther, 1864)				X	X				Fowler (1943) | Eigenmann (1922)
Moenkhausia orteguasae Fowler, 1943	X	X		X					Fowler (1943) | ANSP 70496
Moenkhausia robertsi Géry, 1964				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | ICN-MHN 5511, 6036
Moenkhausia simulata (Eigenmann, 1924)				X					Correa (2003)
Paracheirodon axelrodi (Schultz, 1956)					X				Cala (1977)
Paracheirodon innesi (Myers, 1936)				X					Mojica et al. (2005)
Paracheirodon simulans (Géry, 1963)					X				Weitzman and Fink (1983)
Parapristella georgiae Géry, 1964					X				Géry (1964a) | Lasso et al. 2004, Maldonado-Ocampo 2004, Maldonado-Ocampo et al. 2006b, Maldonado-Ocampo et al. 2008, Lasso et al. 2009
Petitella georgiae Géry & Boutière, 1964				X					Galvis et al. (2007b)
Thayeria obliqua Eigenmann, 1908				X	X				Maldonado-Ocampo (2001) | ICN-MHN 6025, 17140
Tetragonopterus argenteus Cuvier, 1816				X	X				Mojica et al. (2005) | Fowler (1945)
Tetragonopterus chalceus Spix & Agassiz, 1829				X	X				Fowler (1943) | Cala (1977)
Aphyocharax alburnus (Günther, 1869)				X	X				Fowler (1943) | Maldonado-Ocampo et al. (2006a)
**Aphyocharax colifax* Taphorn & Thomerson, 1991				X					CZUT-IC 4271
Aphyocharax erythrurus Eigenmann, 1912				X	X				Galvis et al. (2007b) | ICN-MHN 5387
Aphyocharax pusillus Günther, 1868				X					Galvis et al. (2007b)
Paragoniates alburnus Steindachner, 1876				X	X				Mojica et al. (2005) | Galvis et al. (2007a)
Phenagoniates macrolepis (Meek & Hildebrand, 1913)								X	Eigenmann and Henn (1914) | Eigenmann (1922)
Prionobrama filigera (Cope, 1870)				X					Mojica et al. (2005)
Xenagoniates bondi Myers, 1942					X				Cala (1977)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Atopomesus pachyodus Myers, 1927				X					Myers (1927) | CAS 41736 [ex IU 17673]
Axelrodia riesei Géry, 1966	X	X			X				Géry (1966a) | USNM 207923, 207924 | ANSP 112512, 139715 | MNHN 1982-0538 | ZMA 113865
Axelrodia stigmatias (Fowler, 1913)				X					Arbeláez et al. (2004)
Microschemobrycon callops Böhlke, 1953					X				Maldonado-Ocampo et al. (2006a)
Microschemobrycon casiquiare Böhlke, 1953				X	X				Galvis et al. (2007b) | Maldonado-Ocampo et al. (2006a)
Microschemobrycon geisleri Géry, 1973				X					Arbeláez et al. (2004)
**Microschemobrycon melanotus* (Eigenmann, 1912)					X				MPUJ 236, 247, 630, 1436, 4497
**Oxybrycon parvulus* Géry, 1964				X					CZUT-IC 17910, 17953
**Parecbasis cyclolepis* Eigenmann, 1914				X					CIACOL 272
**Tyttobrycon xeruini* Géry, 1973					X				IAvH-P-14408, 15186, 15208, 15216, 15233, 15244, 15256, 15358, 15391, 15427, 15433, 15469, 15482, 15517, 15556, 15573, 15597, MPUJ 11025
Grundulus bogotensis (Humboldt, 1821)	X	X	X			X			Humboldt and Valenciennes (1821) | ZMB 33306, 3505, 31499
Grundulus cochae Román-Valencia, Paepke & Pantoja, 2003	X	X		X		-			Román-Valencia et al. (2001)| IUQ 453, 454, 455 | STRI 1369
Nematobrycon lacortei Weitzman & Fink, 1971	X	X					X	-	Weitzman and Fink (1971) | USNM 205594, 205595-96 | BMNH 1971.3.16.1 | CAS 13396 | FMNH 70525 | ZMA 110740
Nematobrycon palmeri Eigenmann, 1911	X	X					X	X	Eigenmann (1911) | Maldonado-Ocampo et al. (2013b)
Cheirodontops geayi Schultz, 1944					X				Urbano-Bonilla et al. (2009).
Nanocheirodon insignis (Steindachner, 1880)						X		X	Steindachner (1880) | Eigenmann (1915) | IAvH-P 11746 | MCNG 24875, 24981, 32355, 33285 | NMW 62543-44
Odontostilbe fugitiva Cope, 1870				X					Fowler (1945) | Lima RS (2003)
**Odontostilbe pao* Bührnheim & Malabarba, 2007					X				Urbano-Bonilla et al. (2009).
Odontostilbe pulchra (Gill, 1858)					X				Bührnheim and Malabarba (2007)
Odontostilbe splendida Bührnheim & Malabarba, 2007					X				Bührnheim and Malabarba (2007) | ANSP 181040, 181041 | IAvH-P 3239, 3326, 3328, 3615, 7943, 7945, 7949, 7951, 8050, 8051, 8070, 9553-9555, 9557, 9558, 9697 | ICN-MHN 14168 | INPA 25173 | MBUCV 32890 | MCNG 54519 | MCP 38862

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Protocheirodon pi (Vari, 1978)				X					CAS 41749
Saccoderma hastata (Eigenmann, 1913)	X	X				X		X	Eigenmann (1913) | Eigenmann (1915)
Saccoderma melanostigma Schultz, 1944								X	Ortega-Lara et al. (2012)
Saccoderma robusta Dahl, 1955	X	X						X	Dahl (1955) | MHNG 1066.39-42
Eretmobrycon dahli (Román-Valencia, 2000)							X		Román-Valencia (2000) | ICN-MNH 2722 | IAvH-P 4734 | IMCN 1689, 3894, 3905, 3911, 3918, 4052
Eretmobrycon emperador (Eigenmann & Ogle, 1907)						-	X	X	Maldonado-Ocampo et al. (2013b)
Eretmobrycon guaytarae (Eigenmann & Henn, 1914)	X	X				-	X		Eigenmann et al. (1914) | FMNH 56657 [ex CM 5474] | CAS 40844 [ex IU 13168]
Eretmobrycon miraensis (Fowler, 1945)	X	X				-	X		Fowler (1945) | ANSP 71686, 71687-92, 71693, 71694
Eretmobrycon peruanus (Müller & Troschel, 1845)							X	X	Maldonado-Ocampo et al. (2013b) | Fowler (1939)
Eretmobrycon scleroparius (Regan, 1908)							-	X	Maldonado-Ocampo et al. (2006b), Colombia. Biota Colombiana 7(1): 143-154
Markiana geayi (Pellegrin, 1909)				-	X				Lasso et al. (2005)
**Scopaeocharax atopodus* (Böhlke, 1958)				X					CIACOL 2713
Tyttocharax cochui (Ladiges, 1950)				X					Arbeláez et al. (2004)
Tyttocharax madeirae Fowler, 1913				X					Román-Valencia et al. (2012)
Tyttocharax metae Román-Valencia, García-Alzate, Ruiz-C. & Taphorn B., 2012	X	X			X				Román-Valencia et al. (2012) | IUQ 2581
Xenurobrycon heterodon Weitzman & Fink, 1985				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | USNM 280246
Chrysobrycon guahibo Vanegas-Ríos, Urbano-Bonilla & Azpelicueta, 2015	X	X			X				Vanegas-Ríos et al. (2015)
Chrysobrycon hesperus (Böhlke, 1958)				X					Vanegas-Ríos et al. (2013b)
Chrysobrycon mojicai Vanegas-Ríos & Urbano-Bonilla, 2017	X	X		X					Vanegas-Ríos et al. (2017)
Corynopoma riisei Gill, 1858					X				Cala (1977)
Gephyrocharax caucanus Eigenmann, 1912	X	X				X	+		Eigenmann (1912) | CAS 44275-77 [ex IU 12668-70] | FMNH 56012 [ex CM 4802], 56013-15, 69553, 95008 | USNM 81921 |
Gephyrocharax chocoensis Eigenmann, 1912	X	X					X	X	Eigenmann (1912) | Vanegas-Ríos (2016)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Gephyrocharax martae Dahl, 1943	X	X				X			Dahl (1943)
Gephyrocharax melanocheir Eigenmann, 1912	X	X				X		X	Eigenmann (1912) | CAS 44292-93 [ex IU 12696-97] | FMNH 56049 [ex CM 4839], 56050-51, 69554 | USNM 79209 | Vanegas-Ríos (2016)
Gephyrocharax sinuensis Dahl, 1964	X	X						X	Dahl and Medem (1964) | ICN-MHN 749
Gephyrocharax torresi Vanegas-Ríos, Azpelicueta, Mirande & García Gonzales, 2013	X	X				X			Vanegas-Ríos et al. (2013a) | UIST 1767
Gephyrocharax valencia Eigenmann, 1920					X				Vanegas-Ríos (2016)
Gephyrocharax venezuelae Schultz, 1944								X	Ortega-Lara et al. (2012)
Pterobrycon landoni Eigenmann, 1913	X	X						X	Eigenmann (1913) | FMNH 56250 [ex CM 5051]
Boehlkea fredcochui Géry, 1966				X					Géry (1966b) | ANSP 111676 [ex Géry coll. 0124.18-19], 111668 | MNHN 1980-1425 | ZMA 113828
Hemibrycon antioquiae Román-Valencia, Ruiz-C, Taphorn, Mancera-Rodriguez & García-Alzate, 2013	X	X				X			Román-Valencia et al. (2013)
Hemibrycon boquiae (Eigenmann, 1913)	X	X				X			Eigenmann (1913) | CAS 44332 [ex IU 12831] | FMNH 56259 [ex CM 5059], 56260
Hemibrycon brevispini Román-Valencia & Arcila-Mesa, 2009	X	X				X			Román-Valencia and Arcila-Mesa (2009) | IUQ 542
Hemibrycon cairoense Román-Valencia & Arcila-Mesa, 2009	X	X				X			Román-Valencia and Arcila-Mesa (2009) | IUQ 534
Hemibrycon cardalensis Román-Valencia, Ruiz-C., Taphorn, Mancera-Rodriguez & García-Alzate, 2013	X	X				X			Román-Valencia et al. (2013)
Hemibrycon carrilloi Dahl, 1960	X	X				-	-	X	Dahl (1960c) | ICN-MHN 29, 31, 126
Hemibrycon caucanus (Eigenmann, 1913)						X		X	Eigenmann (1913) | Maldonado-Ocampo et al. (2006b)
Hemibrycon colombianus Eigenmann, 1914	X	X				X			Eigenmann et al. (1914) | MNH 56653 [ex CM 5470], 56654-56 | CAS 44350 [ex IU 13162], 44351 [ex IU 13163], 44352 [ex IU 13164], 44353 [ex IU 13165]
Hemibrycon cristiani (Román-Valencia, 1999)	X	X			X				Román-Valencia (1999) | IAvH-P 7529, 7530 | ICNMNH 3445, 3446-49 | IUQ 381-382

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Hemibrycon dariensis Meek & Hildebrand, 1916								X	Román-Valencia and Ruiz-C. (2007)
Hemibrycon decurrens (Eigenmann, 1913)					-	X			FMNH 56255 [ex CM 5055] | CAS 39542 [IU 12829]
Hemibrycon dentatus (Eigenmann, 1913)	X	X				X			Eigenmann (1913)
Hemibrycon fasciatus Román-Valencia, Ruiz-C., Taphorn, Mancera-Rodriguez & García-Alzate, 2013	X	X				X			Román-Valencia et al. (2013)
Hemibrycon galvisi (Román-Valencia, 2000)	X	X		X					Román-Valencia (2000) | ICN-MHN 2720, 2721 | IUQ 221-223
Hemibrycon jabonero Schultz, 1944					-			X	Ortega-Lara et al. (2012)
Hemibrycon jelskii (Steindachner, 1877)				X					Maldonado-Ocampo et al. (2008)
Hemibrycon loisae (Géry, 1964)					X				Géry (1964a) | ANSP 139713 | IAvH-P 3639, 7528, 9194-9197, 9203, 9677-9680 | MNHN 1980-1426 | USNM 198645
Hemibrycon metae Myers, 1930				-	X				Myers (1930)
Hemibrycon microformaa Román-Valencia & Ruiz-C., 2007	X	X						X	Román-Valencia and Ruiz-C. (2007) | IUQ 510, 511-514 | MTDF 27628
Hemibrycon paez Román-Valencia & Arcila-Mesa, 2010	X	X				X			Román-Valencia and Arcila-Mesa (2010)
Hemibrycon palomae Román-Valencia, García-Alzate, Ruiz-C. & Taphorn, 2010	X	X				X			Román-Valencia et al. (2010a) | IUQ 2727-2729, 2802, 2846, 2300, 2301, AUM 50793
Hemibrycon plutarcoi (Román-Valencia, 2001)	X	X				X			Román-Valencia (2001) | ICN-MHN 4887 | IUQ 308, 461, 472, 473
Hemibrycon quindos Román-Valencia & Arcila-Mesa, 2010	X	X				X			Román-Valencia and Arcila-Mesa (2010)
Hemibrycon rafaelense Román-Valencia & Arcila-Mesa, 2008	X	X				X			Román-Valencia and Arcila-Mesa (2008) | ICN-MHN 6703, 3505 | IUQ 499, 509 | MCNG 54101 | MTD F 27623-24
Hemibrycon raqueliae Román-Valencia & Arcila-Mesa, 2010	X	X				X			Román-Valencia and Arcila-Mesa (2010)
Hemibrycon sanjuanensis Román-Valencia, Ruiz-C., Taphorn & García-Alzate, 2014	X	X					X		Román-Valencia et al. (2014b)
Hemibrycon santamartae Román-Valencia, Ruiz-C., García-Alzate & Taphorn, 2010	X	X						X	Román-Valencia et al. (2010d)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Hemibrycon sierraensis García-Alzate, Román-Valencia & Taphorn, 2015	X	X						X	García-Alzate et al. (2015a)
Hemibrycon velox Dahl, 1964	X	X				X		X	Dahl and Medem (1964) | ICN-MHN 1457, 1463, 1464, 2711
Hemibrycon virolinica Román-Valencia & Arcila-Mesa, 2010	X	X				X			Román-Valencia and Arcila-Mesa (2010)
Hemibrycon yacopiae Román-Valencia & Arcila-Mesa, 2010	X	X				X			Román-Valencia and Arcila-Mesa (2010)
Carlastyanax aurocaudatus (Eigenmann, 1913)	X	X	X			X			Eigenmann (1913) | CAS 68647 [ex IU 12911] | FMNH 56882 [ex CM 5162], 56883
Creagrutus affinis Steindachner, 1880						X	X	X	Steindachner (1880) | Eigenmann (1921)
Creagrutus amoenus Fowler, 1943				X					Fowler (1943) | ANSP 70499, 70500-02, 70503
Creagrutus atratus Vari & Harold, 2001	X	X			X	-			Vari and Harold (2001) | ANSP 134080 | IAvH-P 3659, 3660, 8426 | ICN-MHN 16981 | NRM 16842-43 | USNM 353866-67,
**Creagrutus barrigai* Vari & Harold, 2001				X					CZUT-IC 12062
Creagrutus bolivari Schultz, 1944					X				Vari and Harold (2001)
Creagrutus brevipinnis Eigenmann, 1913	X	X				X			Eigenmann (1913) | CAS 41341-42 [ex IU 12728-29], 41375 [ex IU 12730] | FMNH 56095 [ex CM 4887a], 56096-98, 75172 | USNM 79188
Creagrutus calai Vari & Harold, 2001	X	X			X				Vari and Harold (2001) | ANSP 130527, 139149, 177718 | IAvH-P 7918 | NRM 16848-49, 43015-16 | USNM 353304, 353307, 353868
Creagrutus caucanus Eigenmann, 1913	X	X				X			Eigenmann (1913) | CAS 41373-74 [ex IU 12736-37], 69304 [ex IU 12738] | FMNH 56104 [ex CM 4895a], 56105-08
Creagrutus cochui Géry, 1964				X	+				Vari and Harold (2001)
Creagrutus flavescens Vari & Harold, 2001				X					Vari and Harold (2001)
Creagrutus guanes Torres-Mejia & Vari, 2005	X	X				X			Torres-Mejia and Vari (2005) | ICN-MHN 8520, 8521, 8522, 9893, 9894, 9895, 9896, 9897, 9898
Creagrutus hildebrandi Schultz, 1944								X	Ortega-Lara et al. (2012)
Creagrutus leuciscus Regan, 1913	X	X					X		Regan (1913)
Creagrutus machadoi Vari & Harold, 2001					X				Galvis et al. (2007a)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Creagrutus maculosus Román-Valencia, García-Alzate, Ruiz C. & Taphorn B, 2010	X	X			X				Román-Valencia et al. (2010b)
Creagrutus magdalenae Eigenmann, 1913	X	X				X			Eigenmann (1913) | CAS 41641 [ex IU 12722], 60056-57 [ex IU 12725-26] | FMNH 56088 [ex CM 4880], 56089, 56092-93, 69730
Creagrutus maracaiboensis Schultz, 1944								X	Ortega-Lara et al. (2012)
Creagrutus maxillaris (Myers, 1927)				X	X				Myers (1927) | IAvH-P 10192
Creagrutus melasma Vari, Harold & Taphorn, 1994					X				MPUJ 8814, 8815, 9207, 9208, 9209
Creagrutus nigrostigmatus Dahl, 1960	X	X				-		X	Dahl (1960b) | ICN-MHN 989 | SU 49491
Creagrutus paralacus Harold & Vari, 1994								X	Harold and Vari (1994)
Creagrutus phasma Myers, 1927					X				Vari and Harold (2001)
**Creagrutus runa* Vari & Harold, 2001				X					CZUT-IC 4117, 4163
Creagrutus taphorni Vari & Harold, 2001					X				Urbano-Bonilla et al. (2009).
Creagrutus tuyuka Vari & Lima, 2003				X					Vari and Lima (2003)
Creagrutus vexillapinnus Vari & Harold, 2001					X				IAvH-P-14609, 14813
Bryconacidnus hypopterus (Fowler, 1943)	X	X		X					Fowler (1943) | ANSP 70505
**Ceratobranchia binghami* Eigenmann 1927				X					ANSP 70504
**Ceratobranchia joanae* Chernoff & Machado-Allison, 1990					X				CZUT-IC 12827
Ceratobranchia obtusirustris Eigenmann, 1914				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | IAvH-P 7526
Knodus alpha (Eigenmann, 1914)					X				Eigenmann et al. (1914) | CAS 18511 [ex IU 13157] | EBRG 295, 490, 493, 690, 822, 856, 886, 921, 922, 941, 1311 | FMNH 56646 [ex CM 5463], 56646-47 | IAvH-P 3558, 3640, 3641, 3643-3647, 3650-3653, 3657, 8042-8044, 8054, 8055, 9152-9158, 9178-9180, 9200-9202, 9664-9676, 9781, 11789
Knodus breviceps (Eigenmann, 1908)				X	X				IAvH-P 12289, 2538, 2575, 13165, 5176, 5187, 5418, 5419, 8315, 8316, 8317, 8318, 8319, 8320, 8321, 8322, 8323, 8324, 8325, 8326, 8327, 8328, 8329, 8330, 8655, 8694, 8729, 8764, 8795, 8828, 8858, 8889, 8920, 8942, 8954, 8974, 8990, 9013, 9026, 9047, 9072, 9097

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Knodus cinarucoense Román-Valencia, Taphorn B. & Ruiz-C., 2008					X				IAvH-P-14385, 14396, 14443, 14610, 14637, 14705, 14806, 14811, 14994, 15059, 15228, 15237, 15542, 15583, 15603
Knodus deuterodonoides (Eigenmann, 1914)				-	X				Eigenmann et al. (1914) | FMNH 56644 [ex CM 5461], 56645 | CAS 61221 [ex IU 13156]
**Knodus gamma* Géry, 1972				X					CZUT-IC 12073, 12967
Knodus heteresthes (Eigenmann, 1908)				X					Román-Valencia (2003b) | CZUT-IC 4151, 4200, 12308
Knodus meridae Eigenmann, 1911								X	Maldonado-Ocampo et al. (2008)
Knodus moenkhausii (Eigenmann & Kennedy, 1903)				X					Arbeláez et al. (2004) | Bogotá-Gregory and Maldonado-Ocampo (2006a)
Knodus orteguasae (Fowler, 1943)	X	X		X					Fowler (1943)
Knodus tiquiensis Ferreira & Lima, 2006				X					Ferreira and Lima (2006) | CZUT-IC 12307
**Rhinobrycon negrensis* Myers, 1944					X				CZUT-IC 5081
Argopleura chocoensis (Eigenmann, 1913)	X	X					X	X	Eigenmann (1913) | Maldonado-Ocampo et al. (2006b)
Argopleura conventus (Eigenmann, 1913)	X	X				X			Eigenmann (1913) | CAS 39439 [ex IU 12802] | FMNH 56261 [ex CM 5060], 56262, 71290 | USNM 79174;
Argopleura diquensis (Eigenmann, 1913)	X	X				X			Eigenmann (1913) | CAS 39013 [ex IU 12820] | FMNH 56272 [ex CM 5072], 56273, 69690;
Argopleura magdalenensis (Eigenmann, 1913)	X	X				X			Eigenmann (1913) | BMNH 1924.3.3.37-38 | CAS 40827-32 [ex IU 12821-26] | FMNH 56263 [ex CM 5063], 56264-65, 56267-71, 56275, 69760 | USNM 79176, 236097
**Cyanogaster noctivaga* Mattox, Britz, Toledo-Piza & Marinho, 2013				X	X				CZUT-IC 18065, MPUJ 273, 1257, 9846-9847, 10726-10729, 10744
Othonocheirodus Myers, 1927				+	X				CZUT-IC 5497, 12031, 12033, 12525, MPUJ 3747
Bryconamericus andresoi Román-Valencia, 2003	X	X				-	X		Román-Valencia (2003a) | IUQ 447, 448-449 | CAS 70099-101 | FMNH 56566-67
Bryconamericus arilepis Román-Valencia, Vanegas-Ríos & Ruiz-C, 2008	X	X				X			Román-Valencia et al. (2008) | IUQ 920, 1915, 1917, 1567
Bryconamericus caldasi Román-Valencia, Ruiz-C., Taphorn B. & García-Alzate, 2014	X	X				X			Román-Valencia et al. (2014a) | IUQ 3714
Bryconamericus carlosi Román-Valencia, 2003				X					Román-Valencia (2003c)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Bryconamericus cismontanus Eigenmann, 1914					X				Román-Valencia (2003c) | FMNH 56642 [ex CM 5459] | IAvH-P 3315, 3317-3319, 7920, 9168-9170, 9188-9193, 9480, 9481, 9650-9663, 9753
Bryconamericus foncensis Román-Valencia, Vanegas-Ríos & Ruiz-C, 2009	X	X				X			Román-Valencia et al. (2009) | IUQ 1941
Bryconamericus guizae Román-Valencia, 2003	X	X				-	X		Román-Valencia (2003a) | IUQ 450, 451-452 | STRI 1370
Bryconamericus huilae Román-Valencia, 2003	X	X				X			Román-Valencia (2003a) | IUQ 422, 312-313, 423-424, 462-463, 476-477) | STRI 00574
Bryconamericus icelus Dahl, 1964	X	X						X	Dahl and Medem (1964) | SMF 16284
Bryconamericus ichoensis Román-Valencia, 2000	X	X						X	Román-Valencia (2000) | ICN-MHN 2718, 2719
Bryconamericus macarenae Román-Valencia, García-Alzate, Ruiz-C. & Taphorn, 2010	X	X			X				Román-Valencia et al. (2010c) | IUQ 2448, 2271, 2326, 2435, 2437, 2440-2447, 2559-2561 | AUM 50297
**Bryconamericus macrophthalmus* Román-Valencia, 2003				X					CZUT-IC 5124
Bryconamericus multiradiatus Dahl, 1960	X	X						X	Dahl (1960c) | ICN-MHN 82, 58
**Bryconamericus orinocoense* Román-Valencia, 2003				X					CZUT-IC 4886, 4916
Bryconamericus tolimae Eigenmann, 1913	X	X				X			Eigenmann (1913)
Microgenys minuta Eigenmann, 1913	X	X	X			X			Eigenmann (1913) | CAS 47170 [ex IU 12818] | FMNH 56215 [ex CM 5007], 56216
Astyanacinus yariguies Torres-Mejia, Hernández & Senechal, 2012	X	X				X			Torres-Mejia et al. (2012) | UIST 1752
**Astyanax anterior* Eigenmann, 1908				X					IAvH-P 8238-8240, 9117, 11012
Astyanax atratoensis Eigenmann, 1907	X	X						X	Eigenmann and Ogle (1907)
Astyanax bimaculatus (Linnaeus, 1758)				X	X	X	X	X	Fowler (1943) | Maldonado-Ocampo et al. (2013b) | Steindachner (1879a) | IAvH-P 1694, 9110
Astyanax caucanus (Steindachner, 1879)	X	X				X			Steindachner (1879c) | NMW 57372-76 | SMNS 2833 | ZMUC 993
Astyanax daguae Eigenmann, 1913	X	X	X				X	X	Eigenmann (1913) | Maldonado-Ocampo et al. (2006b)
Astyanax fasciatus (Cuvier, 1819)				X	X	X	X	X	Eigenmann (1922) | Fowler (1943) | Lima et al. (2003) | Eigenmann (1921)
Astyanax fasslii (Steindachner, 1915)	X	X				X			Steindachner (1915)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Astyanax filiferus (Eigenmann, 1913)	X	X				X		X	Eigenmann (1913) | Maldonado-Ocampo et al. (2006b)
Astyanax gisleni Dahl, 1943	X	X				X			Dahl (1943)
**Astyanax guianensis* Eigenmann, 1909				X					Marinho (2015)
Astyanax integer Myers, 1930				-	X				Myers (1930) | IAvH-P 3300, 3305-3307, 3309, 3497-3499, 3503, 3505-3507, 3512, 3514-3516, 9698-9704 | SU 23726
Astyanax magdalenae Eigenmann & Henn, 1916						X		X	Eigenmann and Henn (1916) | Maldonado-Ocampo et al. (2006b)
Astyanax maximus (Steindachner, 1876)				X	-				Bogotá-Gregory and Maldonado-Ocampo (2006a) | IAvH-P 1731
Astyanax megaspilura Fowler, 1944	X	X					X	X	Fowler (1944) | Maldonado-Ocampo et al. (2006b)
Astyanax metae Eigenmann, 1914					X				Eigenmann et al. (1914) | CAS 39229 [ex IU 13153] | CRPUT 302, 305, 327, 331, 332 | FMNH 56640 [ex CM 5457], 56641 | IAvH-P 3302, 3521, 3522, 3525-3531, 3535-3544, 7909, 9484, 9643-964
Astyanax microlepis Eigenmann, 1913	X	X		-	-	X	-		Eigenmann (1913) | CAS 39341-45 [ex IU 12769-73] | FMNH 56209 [ex CM 5001], 56210-14, 69559-61, 71291, 95006 | USNM 79167
Astyanax orthodus Eigenmann, 1907	X	X					X	X	Eigenmann and Ogle (1907) | Maldonado-Ocampo et al. (2006b)
Astyanax ruberrimus Eigenmann, 1913						-	X	X	Eigenmann (1913) | Maldonado-Ocampo et al. (2006b) | Eigenmann (1921)
Astyanax scintillans Myers, 1928					X				IAvH-P 4979
Astyanax siapae Garutti, 2003					X				IMCN 3652
Astyanax stilbe (Cope, 1870)								X	Eigenmann (1921)
Astyanax venezuelae Schultz, 1944					X				Urbano-Bonilla et al. (2009).
**Brittanichthys axelrodi* Géry, 1965					X				Weitzman et al. (2005)
Bryconella pallidifrons (Fowler 1946)				X					F. C. T. Lima (pers. com.): as *Hemigrammus analis* in Galvis et al. (2006) | CZUT-IC 17948, IAvH-P 2605, MPUJ 12206, 12207
**Ctenobrycon oliverai* Benine, Lopes & Ron, 2010					X				CZUT-IC 7217, 9056, 9279, 9321, 9670, 9752, 9785, 9801, 9810, 9851
Ctenobrycon spilurus (Valenciennes, 1850)				X	X				Mojica et al. (2005) | Galvis et al. (2007a)
Genycharax tarpon Eigenmann, 1912	X	X	X			X			Eigenmann (1912) | CAS 44271-73 [ex IU 12672-74] | FMNH 56018 [ex CM 4808], 56019-2, 69547, 69779 | USNM 79207
Jupiaba abramoides (Eigenmann, 1909)					X				Cala (1977) | ICN-MHN 546

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Jupiaba anteroides (Géry, 1965)				X	X				Arbeláez et al. (2004) | Galvis et al. (2007a)
Jupiaba asymmetrica (Eigenmann, 1908)				X					Fowler (1945) | Lima et al. (2003)
Jupiaba polylepis (Günther, 1864)					X				IAvH-P 2013
Jupiaba scologaster (Weitzman & Vari, 1986)				X					Galvis et al. (2007b)
Jupiaba zonata (Eigenmann, 1908)				X					Galvis et al. (2007b)
Pseudochalceus kyburzi Schultz, 1966	X	X					X		Schultz (1966) | USNM 231738 [was USNM 257403-F27], 171751, 231739 [ex USNM 258173-F1]
Pseudochalceus longianalis Géry, 1972							X		Géry (1972) | MHNG 1226.90., 1226.91-99 | ANSP 140067 | Géry personal collection 0690
Schultzites axelrodi Géry, 1964	X	X			X				Géry (1964a) | USNM 198642
Serrabrycon magoi Vari, 1986					X				FMNH 92642
Thrissobrycon pectinifer Böhlke, 1953					X				Maldonado-Ocampo et al. (2006a)
Gasteropelecidae 9 spp									
Carnegiella marthae Myers, 1927				X	X				Mojica et al. (2005) | Cala (1977)
Carnegiella myersi Fernández-Yépez, 1950				X					Mojica (1999) | NRM 200 | IMCN 7062
Carnegiella schereri Fernández-Yépez, 1950				X					Galvis et al. (2007b)
Carnegiella strigata (Günther, 1864)				X	X				Weitzman (1960) | Cala (1977)
Engraulisoma taeniatum Castro, 1981				-	X				IAvH-P 13957
Gasteropelecus maculatus Steindachner, 1879						X	X	X	Eigenmann (1912) | Eigenmann (1922) | Weitzman (1960)
Gasteropelecus sternicla (Linnaeus, 1758)				X					Weitzman (1960)
Thoracocharax securis (De Filippi, 1853)				X					Mojica et al. (2005)
Thoracocharax stellatus (Kner, 1858)				X	X				Weitzman (1960)
Bryconidae 22 spp (2 added and 3 deleted from 2008)									
Brycon amazonicus (Agassiz, 1829)				+	X				Maldonado-Ocampo et al. (2006a) | IAvH-P 11603
Brycon argenteus Meek & Hildebrand, 1913							X		Maldonado-Ocampo et al. (2013b)
Brycon dentex Günther, 1860							X		Mojica et al. (2004) | ICN-MHN 2351, 5025

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Brycon falcatus Müller & Troschel, 1844				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Maldonado-Ocampo et al. (2006a) | IAvH-P 5326 | ICN-MHN 4260, 2000, 5677
Brycon fowleri Dahl, 1955	X	X				X		X	Dahl (1955) | ICN-MHN 2044
Brycon henni Eigenmann, 1913	X	X				X	X		Eigenmann (1913) | Maldonado-Ocampo et al. (2005)
**Brycon hilarii* (Valenciennes, 1850)				X					Lima (2017)
Brycon labiatus Steindachner, 1879	X	X	X			X			Steindachner (1879b) | NMW
Brycon medemi Dahl, 1960	X	X						X	Dahl (1960c) | ICN-MHN 41, 73
Brycon meeki Eigenmann & Hildebrand, 1918	X	X					X	X	Eigenmann (1918a) | Maldonado-Ocampo et al. (2006b)
Brycon melanopterus (Cope, 1871)				X	-				Mojica et al. (2005) | Galvis et al. (2007a)
Brycon moorei Steindachner, 1878	X	X	X			X		X	Steindachner (1878) | Mojica et al. (2006b)
Brycon oligolepis Regan, 1913							X	X	Regan (1913) | Maldonado-Ocampo et al. (2006b) | Eigenmann (1922)
Brycon pesu Müller & Troschel, 1845				X	X				Galvis et al. (2007b) | Galvis et al. (2007a)
**Brycon polylepis* Moscó Morales 1988					X				Lima (2017) | IAvH-P 3554, 3671
Brycon posadae Fowler, 1945							X		Fowler (1945) | ANSP 71695
Brycon rubricauda Steindachner, 1879	X	X	X			X		-	Steindachner (1879b)
Brycon sinuensis Dahl, 1955	X	X	X					X	Dahl (1955)
Brycon striatulus (Kner, 1863)							X	X	Regan (1913) | Maldonado-Ocampo et al. (2008) |
Brycon whitei Myers & Weitzman, 1960	X	X			X				Myers and Weitzman (1960) | Urbano-Bonilla et al. (2009).
Salminus affinis Steindachner, 1880			X	-		X		X	Steindachner (1880) | ANSP 140067 | MHNG 1226.90, 1226.91-99
Salminus hilarii Valenciennes, 1850				X	X				Fowler (1943) | Cala (1977)
Triportheidae 12 spp (2 added and 2 deleted from 2008)									
Agoniates anchovia Eigenmann, 1914				X					Mojica et al. (2005)
Agoniates halecinus Müller & Troschel, 1845				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Maldonado-Ocampo et al. (2006a)
Triportheus albus Cope, 1872				X					Mojica et al. (2005)
Triportheus angulatus (Spix & Agassiz, 1829)				X					Mojica et al. (2005)
Triportheus auritus (Valenciennes, 1850)				+	X				Maldonado-Ocampo and Bogotá-Gregory (2007) | Galvis et al. (2007b)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Triportheus brachipomus (Valenciennes, 1850)					X				Galvis et al. (2007a)
**Triportheus culter* (Cope, 1872)				X					CZUT-IC 7310
Triportheus magdalenae (Steindachner, 1878)	X	X				X			Steindachner (1878) | NMW 69151-54 | ZMUC 87
Triportheus orinocensis Malabarba, 2004					X				Maldonado-Ocampo et al. (2013a)
Triportheus pictus (Garman, 1890)				X					Correa (2003)
**Triportheus rotundatus* (Jardine, 1841)				X					IAvH-P 11059
Triportheus venezuelensis Malabarba, 2004					X				Galvis et al. (2007a)
Iguanodectidae 12 spp (1 added and 1 deleted from 2008)									
Bryconops affinis (Günther, 1864)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Cala (1977) | IAvH-P 2725, 3579
Bryconops alburnoides Kner, 1858				X	X				Galvis et al. (2007b) | ICN-MHN 9918
Bryconops caudomaculatus (Günther, 1864)				X	X				Correa (2003) | Eigenmann (1922)
Bryconops collettei Chernoff & Machado-Allison, 2005				X					Maldonado-Ocampo et al. (2008)
Bryconops humeralis Machado-Allison, Chernoff & Buckup, 1996					X				Maldonado-Ocampo et al. (2006a)
Bryconops giacopinii (Fernández-Yépez, 1950)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Maldonado-Ocampo and Bogotá-Gregory (2007) | IAvH-P 1691, 5307 | ICN-MHN 4625, 10371
Bryconops inpai Knöppel, Junk & Géry, 1968				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
**Bryconops magoi* Chernoff & Machado-Allison, 2005				X					CZUT-IC 4129
Iguanodectes adujai Géry, 1970				X	X				Maldonado-Ocampo et al. (2008)
Iguanodectes geisleri Géry, 1970				X	X				Castro and Arboleda (1988) | Maldonado-Ocampo (2001)
Iguanodectes purusii (Steindachner, 1908)				X					Mojica et al. (2005)
Iguanodectes spilurus (Günther, 1864)				X	X				Arbeláez et al. (2004) | Maldonado-Ocampo et al. (2006a)
Chalceidae 3 spp									
Chalceus epakros Zanata & Toledo-Piza, 2004				X	X				Zanata and Toledo-Piza (2004) | Maldonado-Ocampo et al. (2006a)
Chalceus erythrurus (Cope, 1870)				X					Mojica et al. (2005)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Chalceus macrolepidotus Cuvier, 1816				X	X				Correa (2003) | Cala (1977)
Gymnotiformes 78 spp (12 added and 8 deleted from 2008)									
Gymnotidae 12 spp (2 deleted from 2008)									
Electrophorus electricus (Linnaeus, 1766)				X	X				Maldonado-Ocampo and Albert. (2003) | Cala (1977)
Gymnotus anguillaris Hoedeman, 1962					X				Maldonado-Ocampo and Albert. (2003)
Gymnotus ardilai Maldonado-Ocampo & Albert, 2004	X	X	X			X			Maldonado-Ocampo and Albert (2004) | IAvH-P 3477, 4001
Gymnotus carapo Linnaeus, 1758				X	X				Fowler (1945) | Eigenmann (1922)
Gymnotus cataniapo Mago-Leccia, 1994					X				Maldonado-Ocampo and Albert (2003)
Gymnotus choco Albert, Crampton & Maldonado-Ocampo, 2003	X	X	X				X	X	Albert and Crampton (2003b) | ICN-MHN 6621 | NRM 27734
Gymnotus coropinae Hoedeman, 1962				X	X				Maldonado-Ocampo and Albert (2003) | Galvis et al. (2007a)
Gymnotus henni Albert, Crampton & Maldonado-Ocampo, 2003			X				X		Albert and Crampton (2003b) | CAS 47290, 217162 | FMNH 56793
Gymnotus javari Albert, Crampton & Hagedorn, 2003				X					Galvis et al. (2007b)
Gymnotus pedanopterus Mago-Leccia, 1994				X					Maldonado-Ocampo and Albert (2003)
Gymnotus stenoleucus Mago-Leccia, 1994				X	X				Maldonado-Ocampo and Albert (2003)
Gymnotus tigre Albert & Crampton, 2003				X					Albert and Crampton (2003b) | UF 25552, 128412 | ICN-MHN 6690
Hypopomidae 9 spp (5 added and 2 deleted from 2008)									
Brachyhypopomus batesi Crampton, de Santana, Waddell & Lovejoy, 2016				X					Crampton et al. (2016)
Brachyhypopomus beebei (Schultz, 1944)				X	X				Maldonado-Ocampo and Albert (2003)
Brachyhypopomus bennetti Sullivan, Zuanon & Cox Fernandes, 2013				X					Sullivan et al. (2013b)
Brachyhypopomus brevirostris (Steindachner, 1868)				X	X	-			Maldonado-Ocampo and Albert (2003)
Brachyhypopomus bullocki Sullivan & Hopkins, 2009				X	X				Sullivan and Hopkins (2009) | Crampton et al. (2016) | ANSP 187477

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Brachyhypopomus flavipomus Crampton, de Santana, Waddell & Lovejoy, 2016				X					Crampton et al. (2016)
Brachyhypopomus occidentalis (Regan, 1914)						X	X	X	Regan (1914) | Maldonado-Ocampo et al. (2006b) | Albert and Crampton (2003a)
Brachyhypopomus sullivani Crampton, de Santana, Waddell & Lovejoy, 2016					X				Crampton et al. (2016)
Microsternarchus bilineatus Fernández-Yépez, 1968					X				Maldonado-Ocampo and Albert (2003)
Rhamphichthyidae 10 spp (1 added and 1 deleted from 2008)									
Gymnorhamphichthys hypostomus Ellis, 1912				X	X				Maldonado-Ocampo and Albert (2003)
Gymnorhamphichthys rondoni (Miranda Ribeiro, 1920)				X	X				Maldonado-Ocampo and Albert (2003)
**Rhamphichthys apurensis* (Fernández-Yépez, 1968)					X				CZUT-IC 3244, 5178, 5179, 9362, 9421, 9422, 9423, 9424, 9448, 9449, 9547
Rhamphichthys drepanium Triques, 1999					X				Maldonado-Ocampo and Albert (2003)
Rhamphichthys marmoratus Castelnau, 1855					X				Cala (1977)
Rhamphichthys rostratus (Linnaeus, 1766)				X	X				Maldonado-Ocampo and Albert (2003)
Hypopygus lepturus Hoedeman, 1962				X	X				Maldonado-Ocampo and Albert (2003)
Hypopygus neblinae Mago-Leccia, 1994				X	X				Galvis et al. (2007b) | Maldonado-Ocampo and Albert (2003)
Steatogenys duidae (La Monte, 1929)				X	X				Maldonado-Ocampo et al. (2006a) | Maldonado-Ocampo and Albert (2003)
Steatogenys elegans (Steindachner, 1880)				X	X				Maldonado-Ocampo and Albert (2003)
Sternopygidae 16 spp (2 added from 2008)									
Distocyclus conirostris (Eigenmann & Allen, 1942)				X					Maldonado-Ocampo and Albert (2003)
'*Eigenmannia*' *goajira* Schultz, 1949								X	Maldonado-Ocampo and Albert (2003)
Eigenmannia humboldtii (Steindachner, 1878)						X		X	Steindachner (1878) | Maldonado-Ocampo et al. (2006b)
Eigenmannia limbata (Schreiner & Ribeiro, 1903)				X					Maldonado-Ocampo and Albert (2003)
Eigenmannia macrops (Boulenger, 1897)					X				Maldonado-Ocampo and Albert (2003)
Eigenmannia nigra Mago-Leccia, 1994				X					Maldonado-Ocampo and Albert (2003)
Eigenmannia virescens (Valenciennes, 1836)				X	X	X	X	X	Eigenmann and Ward (1905) | Maldonado-Ocampo and Albert (2003)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Rhabdolichops caviceps (Fernández-Yépez, 1968)					X				Maldonado-Ocampo and Albert (2003)
**Rhabdolichops eastwardi* Lundberg & Mago-Leccia, 1986				X					CZUT-IC 3642, 3987
Rhabdolichops troscheli (Kaup, 1856)				X					Maldonado-Ocampo and Albert (2003)
**Rhabdolichops zareti* Lundberg & Mago-Leccia, 1986					X				CZUT-IC 9471
Sternopygus aequilabiatus (Humboldt, 1805)						X	+	+	Humboldt (1805) | Maldonado-Ocampo et al. (2013b)
Sternopygus astrabes Mago-Leccia, 1994					X				Maldonado-Ocampo and Albert (2003)
Sternopygus dariensis Meek & Hildebrand, 1916							X	X	Hulen et al. (2005)
Sternopygus macrurus (Bloch & Schneider, 1801)				X	X				Maldonado-Ocampo and Albert (2003) | Eigenmann (1922)
Sternopygus pejeraton Schultz, 1949								X	Ortega-Lara et al. (2012)
Apteronotidae 31 spp (4 added and 3 deleted from 2008)									
Adontosternarchus balaenops (Cope, 1878)				X					Maldonado-Ocampo and Albert (2003)
Adontosternarchus clarkae Mago-Leccia, Lundberg & Baskin, 1985				X					Mago-Leccia et al. (1985)
Adontosternarchus devenanzii Mago-Leccia, Lundberg & Baskin, 1985					X				Mago-Leccia et al. (1985)
**Adontosternarchus sachsi* (Peters, 1877)					X				CZUT-IC 9438, 9451, 9453, 9455, 9457, 9475, 9490, 9492
Apteronotus albifrons (Linnaeus, 1766)					X				Maldonado-Ocampo and Albert (2003)
Apteronotus anu de Santana & Vari, 2013								X	de Santana and Vari (2013)
Apteronotus apurensis Fernández-Yépez, 1968					X				Maldonado-Ocampo and Albert (2003)
Apteronotus bonapartii (Castelnau, 1855)				X					Maldonado-Ocampo and Albert (2003)
Apteronotus cuchillejo (Schultz, 1949)								X	Maldonado-Ocampo and Albert (2003)
Apteronotus cuchillo Schultz, 1949								X	Maldonado-Ocampo and Albert (2003)
Apteronotus eschmeyeri de Santana, Maldonado-Ocampo, Severi & Mendez, 2004	X	X				X		X	de Santana et al. (2004) | Maldonado-Ocampo et al. (2006b)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Apteronotus galvisi de Santana, Maldonado-Ocampo & Crampton, 2007	X	X			X				de Santana et al. (2007)
Apteronotus jurubidae (Fowler, 1944)	X	X					X		Fowler (1944) | ANSP 71435
Apteronotus macrolepis (Steindachner, 1881)				X					Bogotá-Gregory and Maldonado-Ocampo 2006
Apteronotus macrostomus (Fowler, 1943)	X	X			X				Fowler (1943) | ANSP 70528
Apteronotus magdalenensis (Miles, 1945)	X	X	X			X			Miles (1945) | BMNH 1947.7.1.138 | USNM 123795
Apteronotus mariae (Eigenmann & Fisher, 1914)	X	X				X			Eigenmann and Fisher (1914) | FMNH 56774 [ex CM 5594] | CAS 62345 [ex IU 13375]
Apteronotus milesi de Santana & Maldonado-Ocampo, 2005	X	X				X			de Santana and Maldonado-Ocampo. (2005) | IAvH-P 3996 | CAS 72249 [ex IU 13379], 72250 [ex IU 13379] | IAvH-P 3997 | ICMN 2500 | ICNMNH 3155 | FMNH 56775, 56776, 56777, 56778
Apteronotus rostratus (Meek & Hildebrand, 1913)						+	X	X	de Santana and Vari (2013) | Eigenmann and Fisher (1914)
Apteronotus spurrellii (Regan, 1914)	X	X					X		Regan (1914) | BMNH 1914.5.18.90-93
Parapteronotus hasemani (Ellis, 1913)				X					Maldonado-Ocampo and Albert (2003)
Platyurosternarchus macrostomus (Günther, 1870)				X	X				Maldonado-Ocampo and Albert (2003)
Sternarchorhynchus mormyrus (Steindachner, 1868)				X	X				Maldonado-Ocampo and Albert (2003)
Sternarchorhynchus oxyrhynchus (Müller & Troschel, 1848)				-	+				Maldonado-Ocampo and Albert (2003)
Sternarchorhynchus roseni Mago-Leccia, 1994					X				Maldonado-Ocampo and Albert (2003) | IAvH-P 2981
Compsaraia compsus (Mago-Leccia, 1994)					X				Maldonado-Ocampo and Albert (2003)
Sternarchogiton nattereri (Steindachner, 1868)				X					Maldonado-Ocampo and Albert (2003)
**Sternarchella orinoco* Mago-Leccia, 1994					X				CZUT-IC 9493, 9535
**Sternarchella orthos* Mago-Leccia, 1994					X				CZUT-IC 9445, 9482, 9484
Sternarchella schotti (Steindachner, 1868)				X	+				Maldonado-Ocampo and Albert (2003) | Evans et al. (2017)
Sternarchorhamphus muelleri (Steindachner, 1881)				X					Maldonado-Ocampo and Albert (2003)
Siluriformes 588 spp (98 added and 61 deleted from 2008)									

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Trichomycteridae 66 spp (16 added and 6 deleted from 2008)									
Eremophilus mutisii Humboldt, 1805	X	X	X			X			Humboldt (1805)
Ituglanis guayaberensis (Dahl, 1960)	X	X			X				Dahl (1960a)
Ituglanis metae (Eigenmann, 1917)					X				Eigenmann (1917a) | CAS 58138 [ex IU 13770]
Rhizosomichthys totae (Miles, 1942)	X	X	X		+	-			Miles (1942) | ICN-MHN 353 | MCZ 35744 | SU 37074
Trichomycterus arhuaco Ardila Rodríguez, 2016	X	X				X			Ardila Rodríguez (2016c) | Holotype CAR 684
Trichomycterus ballesterosi Ardila Rodríguez, 2011	X	X						X	Ardila Rodríguez (2011a) | CAR 400
Trichomycterus banneaui (Eigenmann, 1912)	X	X				X			Eigenmann (1912) | CAS 58127 [ex IU 12677] | Holotype FMNH 56025 [ex CM 4815], 56026, 69815 | USNM 79234
Trichomycterus bogotensis (Eigenmann, 1912)	X	X				X			Eigenmann (1912) | CAS 58118 [ex IU 12679] | Holotype FMNH 56030 [ex CM 4820] | 56031, 56044 | AMNH 7107 | USNM 79232
Trichomycterus cachiraensis Ardila Rodríguez, 2008	X	X	X			X			Ardila Rodríguez (2008c) | CAR 125, 97 | CZUT-IC2920 | IAvH-P 11114 | MBUCV-V35384;
Trichomycterus caliensis (Eigenmann, 1912)	X	X	X			X	-		Eigenmann (1912) | FMNH 56029 [ex CM 4819 not 6819]
Trichomycterus casitaensis Ardila Rodríguez, 2017	X	X						X	Ardila Rodríguez (2017b)
Trichomycterus chapmani (Eigenmann, 1912)	X	X				X	-		Eigenmann (1912) | CAS 58128 [ex IU 12678] | Holotype FMNH 56027 [ex CM 4817], 50628, 69813 | USNM 79233
Trichomycterus dorsostriatum (Eigenmann, 1917)	X	X			X				Eigenmann (1917a) | CAS 64579 [ex IU 13810] | Holotype FMNH 58096 [ex CM 7093], 58097
**Trichomycterus emanueli* (Schultz, 1944)								X	IAvH-P 9797
Trichomycterus garciamarquezi Ardila Rodríguez, 2016	X	X						X	Ardila Rodríguez (2016c) | Holotype CAR 682
Trichomycterus gorgona Fernández & Schaefer, 2005	X	X	X				X		Fernández and Schaefer (2005) | ANSP 149946 | ICN-MHN 10019
Trichomycterus kankuamo Ardila Rodríguez, 2016	X	X				X			Ardila Rodríguez (2016c) | Holotype CAR 685
Trichomycterus knerii Steindachner, 1882					X				Eigenmann (1918b)
Trichomycterus latidens (Eigenmann, 1917)	X	X				-	X		Eigenmann (1917a) | CAS 76335 [ex IU 13801]

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Trichomycterus latistriatus (Eigenmann, 1917)	X	X				X			Eigenmann (1917a) | FMNH 58449 [ex CM 7450]
Trichomycterus maldonadoi Ardila Rodríguez, 2011	X	X						X	Ardila Rodríguez (2011b) | CAR 380, 500
Trichomycterus manaurensis Ardila Rodríguez, 2016	X	X				X			Ardila Rodríguez (2016c) | Holotype CAR 683
Trichomycterus maracaiboensis (Schultz, 1944)								X	Ortega-Lara et al. (2012)
Trichomycterus migrans (Dahl, 1960)	X	X			X				Dahl (1960a) | ICN-MHN 399, 400
Trichomycterus montesi Ardila Rodríguez, 2016	X	X				X			Ardila Rodríguez (2016c) | Holotype CAR 681
Trichomycterus nietoi Ardila Rodríguez, 2014	X	X						X	Ardila Rodríguez (2014)
Trichomycterus nigromaculatus Boulenger, 1887	X	X				-	-	X	Boulenger (1887) | BMNH 1880.2.26.16-17
Trichomycterus ocanaensis Ardila Rodríguez, 2011	X	X						X	Ardila Rodríguez (2011d) | IAvH-P 11115, 9797
Trichomycterus regani (Eigenmann, 1917)	X	X					X		Eigenmann (1917a) | CAS 64591 [ex IU 13772]
Trichomycterus retropinnis Regan, 1903	X	X				X			Regan (1903) | BMNH 1899.8.21.12-13
Trichomycterus romeroi (Fowler, 1941)	X	X				X			Fowler (1941) | ANSP 69331, 69332-35
Trichomycterus ruitoquensis Ardila-Rodríguez, 2007	X	X				X			Ardila Rodríguez (2007) | CAR 340, 37, 88, 89, 325, 331, 332 | IAvH-P 4342, 4344 | IMCN 4195
Trichomycterus sandovali Ardila Rodríguez, 2006	X	X	X			X			Ardila Rodríguez (2006a) | CAR 116
Trichomycterus santanderensis Castellanos-Morales, 2007	X	X				X			Castellanos-Morales (2007) | CAC-CDMB 035
Trichomycterus sketi Castellanos-Morales, 2011	X	X				X			Castellanos-Morales (2011) | CAC-CDMB 104
Trichomycterus spilosoma (Regan, 1913)	X	X				-	X		Regan (1913) | BMNH 1910.7.11.106-107, 1910.7.11.108
Trichomycterus steindachneri DoNascimiento, Prada-Pedreros & Guerrero-Kommritz, 2014	X	X			X				DoNascimiento et al. (2014)
Trichomycterus stellatus (Eigenmann, 1918)	X	X				X			Eigenmann (1918b) | CAS 58121 [ex IU 13814] | FMNH 58101 [ex CM 7097], 58102
Trichomycterus straminius (Eigenmann, 1917)	X	X				X		-	Eigenmann (1917a) | CAS 58148 [ex IU 13818], 58105 [ex IU 13804] | FMNH 58105 [ex CM 7101], 58091-92
Trichomycterus striatus (Meek & Hildebrand, 1913)						-	-	+	Eigenmann (1918b)
Trichomycterus taenia Kner, 1863						-	X		Regan (1913)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Trichomycterus tetuanensis García-Melo, Villa-Navarro & DoNascimiento, 2016	X	X				X			García-Melo et al. (2016)
Trichomycterus torcoromaensis Ardila-Rodríguez, 2016	X	X				X			Ardila Rodríguez (2016a)
Trichomycterus transandianus (Steindachner, 1915)	X	X				X			Steindachner (1915) | NMW 44475
Trichomycterus uisae Castellanos-Morales, 2008	X	X				X			Castellanos-Morales (2008) | CAC-CDMB 072
Trichomycterus unicolor (Regan, 1913)	X	X					X		Regan (1913) | BMNH 1913.10.1.42-43
Malacoglanis gelatinosus Myers & Weitzman, 1966	X	X		X	+				Myers and Weitzman (1966) | CZUT-IC 13816, IAvH-P 13640, SU 50754, 50755
Tridens Eigenmann & Eigenmann, 1889				X	+				ICN-MHN 10101, 10330, 12112, 12114
Tridensimilis venezuelae Schultz, 1944					-			X	Ortega-Lara et al. (2012)
**Tridentopsis pearsoni* Myers, 1925				X					CZUT-IC 17989, 18069
Haemomaster venezuelae Myers, 1927					X				Maldonado-Ocampo et al. (2006a)
Henonemus punctatus (Boulenger, 1887)				X					Mojica et al. (2005)
Henonemus triacanthopomus DoNascimiento & Provenzano, 2006					X				Lasso et al. (2009) | CZUT-IC 9648
Megalocentor echthrus de Pinna & Britski, 1991				X	-				IAvH-P 5995
Ochmacanthus alternus Myers, 1927					X				Dahl (1960a)
Ochmacanthus orinoco Myers, 1927					X				IAvH-P 14250-14252
Ochmacanthus reinhardtii (Steindachner, 1882)				X					Arbeláez et al. (2004)
Pseudostegophilus haemomyzon (Myers, 1942)					X				IAvH-P 1478, 6997
Pseudostegophilus nemurus (Günther, 1869)				X	X				Mojica et al. (2005) | IAvH-P 1189, 4996
Schultzichthys bondi (Myers, 1942)					X				Maldonado-Ocampo et al. (2008)
Schultzichthys gracilis Dahl, 1960	X	X			X				Dahl (1960a) | ICN-MHN 17123
Stegophilus septentrionalis Myers, 1927					X				CZUT-IC 5049
Paracanthopoma Giltay, 1935					X				Maldonado-Ocampo et al. (2008)
Paravandellia phaneronema (Miles, 1943)	X	X				X			Miles (1943) | MCZ 35874 | USNM 120141
Vandellia beccarii Di Caporiacco, 1935					X				Maldonado-Ocampo et al. (2013a)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Vandellia cirrhosa Valenciennes, 1846				X					Castro and Arboleda (1988) | de Pinna and Wosiacki (2003)
Callichthyidae 44 spp (2 added and 3 deleted from 2008)									
Callichthys callichthys (Linnaeus, 1758)				X	X				Mojica et al. (2005) | Cala (1977) | IAvH-P 2089, 12161 | ICN-MHN 548, 6377, 7494, 7495, 16897
Callichthys fabricioi Román-Valencia, Lehmann A. & Muñoz, 1999	X	X	X			X			Román-Valencia et al. (1999) | ICN-MHN 3842 | IUQ 152, 305, 306, 307 | MCP 21174-75 | UV 89018, 91063, 93001-04, 98002, 98031
Callichthys oibaensis Ardila-Rodríguez, 2006	X	X	X			X			Ardila Rodríguez (2006b) | CAR 251, 250 | IMCN 3310 | CZUT-IC 1837 | IAvH-P 5730 | ICNMNH 13396 | MBUCV-V 32798
Dianema longibarbis Cope, 1872				X					Mojica et al. (2005)
Hoplosternum littorale (Hancock, 1828)				X	X				Mojica et al. (2005) | Cala (1977)
Hoplosternum magdalenae Eigenmann, 1913						X		X	Eigenmann (1913) | Eigenmann (1922)
Hoplosternum punctatum Meek & Hildebrand, 1916								X	Maldonado-Ocampo et al. (2006b)
Lepthoplosternum altamazonicum Reis, 1997				X					Galvis et al. (2007b)
Megalechis picta (Müller & Troschel, 1849)				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Megalechis thoracata (Valenciennes, 1840)				X	X				Mojica et al. (2005) | Galvis et al. (2007a)
Corydoras aeneus (Gill, 1858)					X				Nijssen and Isbrücker (1983) | Cala (1977)
Corydoras agassizii Steindachner, 1876				X					Castro (1987b)
Corydoras ambiacus Cope, 1872				X					Castro (1987b)
Corydoras arcuatus Elwin, 1939				X					Castro (1987b)
Corydoras axelrodi Rössel, 1962				-	X				Nijssen and Isbrücker (1983)
Corydoras brevirostris Fraser-Brunner, 1947					X				Galvis et al. (2007a)
**Corydoras concolor* Weitzman, 1961					X				CZUT-IC 11794, 11892
**Corydoras crypticus* Sands, 1995				X					IMCN 5833, IMCN 5834 | CZUT-IC 11837
Corydoras delphax Nijssen & Isbrücker, 1983	X	X		-	X				Nijssen and Isbrücker (1983) | NRM 26073 [1972222.3251] | NRM 26074 | ZMA 119063

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Corydoras elegans Steindachner, 1876				X					Castro (1987b)
Corydoras esperanzae Castro, 1987	X	X			X				Castro (1987b) | UBJTL MM275
Corydoras evelynae Rössel, 1963				X					Galvis et al. (2007b)
Corydoras fowleri Böhlke, 1950				X					Mojica (1999). | IMCN 5710 | NRM 16554
Corydoras gomezi Castro, 1986				X					Castro (1986) | UBJTL MM536
Corydoras habrosus Weitzman, 1960					X				Castro (1987b)
Corydoras leucomelas Eigenmann & Allen, 1942				X					Castro (1987b)
Corydoras loxozonus Nijssen & Isbrücker, 1983	X	X		-	X				Nijssen and Isbrücker (1983) | ANSP 150170
Corydoras melanistius Regan, 1912					X				Castro (1987b)
Corydoras melanotaenia Regan, 1912	X	X		-	X				Regan (1912b) | BMNH 1909.7.23.41 | BMNH 1909.7.23.42
Corydoras melini Lönnberg & Rendahl, 1930				X	X				Regan (1912b) | Nijssen and Isbrücker (1983)
Corydoras metae Eigenmann, 1914	X	X		-	X				Eigenmann (1914) | CAS 36447 [ex IU 13451]
Corydoras osteocarus Böhlke, 1951					X				Galvis et al. (2007a)
Corydoras pastazensis Weitzman, 1963				X					Mojica et al. (2005)
Corydoras pygmaeus Knaack, 1966				X					Galvis et al. (2007b)
Corydoras rabauti La Monte, 1941				X					Castro (1987b)
Corydoras reticulatus Fraser-Brunner, 1938				X					Castro (1987b)
Corydoras reynoldsi Myers & Weitzman, 1960	X	X		X					Myers and Weitzman (1960) | SU 52349, 50702 | ZMA 111424
Corydoras semiaquilus Weitzman, 1964				X					Myers and Weitzman (1960) | Arbeláez et al. (2004)
Corydoras septentrionalis Gosline, 1940					X				Isbrücker (1999)
Corydoras simulatus Weitzman & Nijssen, 1970	X	X		-	X				Weitzman and Nijssen 1970) | USNM 197615, 197616, 197667 | ZMA 110384
Corydoras sodalis Nijssen & Isbrücker, 1986				X					Castro (1987b)
Corydoras splendens (Castelnau, 1855)				X					Mojica et al. (2005)
Corydoras trilineatus Cope, 1872				X					Nijssen and Isbrücker (1983)
Corydoras zygatus Eigenmann & Allen, 1942				X					Mojica et al. (2005)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Astroblepidae 38 spp (16 added and 3 deleted from 2008)									
Astroblepus acostai Ardila Rodríguez, 2011	X	X						X	Ardila Rodríguez (2011e) | CAR 473, 422, | ICN-MHN 17843
Astroblepus ardiladuartei Ardila Rodríguez, 2015	X	X				X			Ardila Rodríguez (2015a)
Astroblepus ardilai Ardila Rodríguez, 2012	X	X				X			Ardila Rodríguez (2012) | CAR 619, 539, 548, 423, 616 | ICN-MHN 18326 | IMCN 5260
Astroblepus bellezaensis Ardila Rodríguez, 2015	X	X				X			Ardila Rodríguez (2015a)
Astroblepus cacharas Ardila Rodríguez, 2011	X	X				X			Ardila Rodríguez (2011c) | CAR 460
Astroblepus caquetae Fowler 1943	X	X		X					Fowler (1943) | ANSP 70506, 70507-08
Astroblepus chapmani (Eigenmann, 1912)	X	X				X	-	-	Eigenmann (1912) | CAS 64658 [ex IU 12708a-c] | FMNH 56071 [ex CM 4863], 50672
Astroblepus chotae (Regan, 1904)						-	X	-	Maldonado-Ocampo et al. (2013b)
Astroblepus cirratus (Regan, 1912)	X	X				-	X		Regan (1912c) | BMNH 1912.3.2.7
Astroblepus curitiensis Ardila Rodríguez, 2015	X	X				X			Ardila Rodríguez (2015b)
Astroblepus floridablancaensis Ardila Rodríguez, 2016	X	X				X			Ardila Rodríguez (2016b) | CAR 660
Astroblepus frenatus Eigenmann, 1918	X	X			-	X		-	Eigenmann (1918a) | FMNH 58384 [ex CM 7380]
Astroblepus grixalvii Humboldt, 1805	X	X				X	-	-	Humboldt (1805)
Astroblepus guentheri (Boulenger, 1887)	X	X				X	-		Boulenger (1887) | BMNH 1880.2.26.18-25
Astroblepus heterodon (Regan, 1908)	X	X					X		Regan (1908) | BMNH 1908.5.29.80
Astroblepus homodon (Regan, 1904)	X	X				X	-		Regan (1904) | BMNH 1902.5.15.27
Astroblepus itae Ardila Rodríguez, 2011	X	X				X			Ardila Rodríguez (2011e) | CAR 555, 432, 433, 435 | ICN-MHN 7844
Astroblepus jimenezae Ardila Rodríguez, 2013	X	X						X	Ardila Rodríguez (2013a) | CAR 470, 542 | CIUA 756, 757, 758;
Astroblepus jurubidae Fowler, 1944	X	X					X		Fowler (1944) | ANSP 71431
Astroblepus latidens Eigenmann, 1918	X	X			+	-	-		Eigenmann (1918a) | FMNH 58366 [ex CM 7362], 58367-71, 69816 | CAS 64659 [ex IU 13678], 64689 [ex IU 13679]
Astroblepus mariae (Fowler, 1919)	X	X			X	-			Fowler (1919) | ANSP 49368, 49369-84
Astroblepus marmoratus (Regan, 1904)	X	X				X			Regan (1904) | BMNH 1899.8.21.10-11

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Astroblepus martinezi Ardila Rodríguez, 2013	X	X						X	Ardila Rodríguez (2013a) | CAR 550,421 | MBUCV 35674
Astroblepus micrescens Eigenmann, 1918	X	X			-	X			Eigenmann (1918a) | CAS 64692 [ex IU 13686] | FMNH 58376 [ex CM 7372], 58377 [ex CM 7373]
Astroblepus mojicai Ardila Rodríguez, 2015	X	X					X		Ardila Rodríguez (2015a)
Astroblepus nettoferreirai Ardila Rodríguez, 2015	X	X				X			Ardila Rodríguez (2015a)
Astroblepus nicefori Myers, 1932	X	X			-	X	-		Myers (1932) | SU 24796 | USNM 94178
Astroblepus onzagaensis Ardila Rodríguez, 2015	X	X				X			Ardila Rodríguez (2015b)
Astroblepus orientalis (Boulenger, 1903)								X	Ortega-Lara et al. (2012)
Astroblepus pradai Ardila Rodríguez, 2015	X	X				X			Ardila Rodríguez (2015b)
Astroblepus putumayoensis Ardila Rodríguez, 2015	X	X		X					Ardila Rodríguez (2015a)
Astroblepus rengifoi Dahl, 1960	X	X						X	Dahl (1960c)
Astroblepus retropinnus (Regan, 1908)	X	X					X		Regan (1908) | BMNH 1908.5.29.81–82 | IMCN 295
Astroblepus santanderensis Eigenmann, 1918	X	X				X			Eigenmann (1918a) | FMNH 58433 [ex CM 7430], 58372-75, 58427-28, 58431-32 | CAS 47001 [ex IU 13741], 47002 [ex IU 13682], 60163 [ex IU 13740], 64696 [ex IU 13683], 64697 [ex IU 13684], 64698 [ex IU 13685]
Astroblepus trifasciatus (Eigenmann, 1912)	X	X				-	X	-	Eigenmann (1912) | AMNH 18667 [ex IU 12711] | CAS 64716-17 [ex IU 12711-12] | FMNH 56076 [ex CM 4868], 56077-78 | ?64718 | USNM 79198
Astroblepus unifasciatus (Eigenmann, 1912)	X	X				-	X	-	Eigenmann (1912) | FMNH 56079 [ex CM 4871], 56080, 69817 | CAS 64718 [ex IU 12713] | USNM 79199
Astroblepus ventralis (Eigenmann, 1912)	X	X				-	X		Eigenmann (1912) | FMNH 56074 [ex CM 4866], 56073, 56075 | AMNH 18666 [ex IU 12710] (1) | CAS 47013 [ex CM 4865, IU 12709], 47014 [ex CM 4867a-g, IU 12710a-g]
Astroblepus verai Ardila Rodríguez, 2015	X	X				X			Ardila Rodríguez (2015b)
Loricariidae 187 spp (30 added and 24 deleted from 2008)									
Pseudorinelepis genibarbis (Valenciennes, 1840)				+	X				Ortega-Lara (2016) | Galvis et al. (2007a)
Acestridium colombiensis Retzer, 2005	X	X			X				Retzer (2005) | FMNH 115255, 105169 | INHS 99093 | USNM 381314

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
**Acestridium dichromum* Retzer, Nico & Provenzano, 1999				X	X				IAvH-P 9946-9948, 10704
Acestridium martini Retzer, Nico & Provenzano, 1999					X				Lasso et al. (2005) | IAvH-P 9949-9951 | ICN-MHN 5333, 6328, 12380-12383,12817,12818, 12384, 12819
Hypoptopoma bianale Aquino & Schaefer, 2010				X					Aquino and Schaefer (2010)
Hypoptopoma brevirostratum Aquino & Schaefer, 2010				X					Aquino and Schaefer (2010)
Hypoptopoma gulare Cope, 1878				X					Aquino and Schaefer (2010)
Hypoptopoma machadoi Aquino & Schaefer, 2010					X				Aquino and Schaefer (2010)
Hypoptopoma spectabile (Eigenmann, 1914)				X	X				Eigenmann (1914) | Aquino and Schaefer (2010)
Hypoptopoma steindachneri Boulenger, 1895				+	-				Aquino and Schaefer (2010)
Hypoptopoma sternoptychum (Schaefer, 1996)				X					Schaefer (1996)
Hypoptopoma thoracatum Günther, 1868				X					Aquino and Schaefer (2010)
Otocinclus batmani Lehmann A., 2006				X					Lehmann (2006) | ICN-MHN 6721, 6722 | ANSP 178616 | MCP 28172, 34087 | MHNUC 474
Otocinclus huaorani Schaefer, 1997				X	X				Galvis et al. (2007b) | Maldonado-Ocampo et al. (2013a)
Otocinclus macrospilus Eigenmann & Allen, 1942				X					Mojica et al. (2005)
Otocinclus vestitus Cope, 1872				X					Mojica et al. (2005)
Otocinclus vittatus Regan, 1904					X				Galvis et al. (2007a)
Oxyropsis acutirostra Miranda Ribeiro, 1951				-	X				Aquino and Schaefer (2002)
Oxyropsis carinata (Steindachner, 1879)				X					Mojica et al. (2005)
Oxyropsis wrightiana Eigenmann & Eigenmann, 1889				X					Aquino and Schaefer (2002)
Parotocinclus eppleyi Schaefer & Provenzano, 1993					X				Maldonado-Ocampo et al. (2006a)
Parotocinclus variola Lehmann, Schvambach & Reis, 2015	X	X		X					Lehmann et al. (2015)
Farlowella acus (Kner, 1854)					X				MPUJ 6067, 6083, 6089, 6095
Farlowella amazona (Günther, 1864)				X					Arbeláez et al. (2004)
Farlowella colombiensis Retzer & Page, 1997	X	X		-	X				Retzer and Page (1997) | ANSP 88080 | CAS 123733, 169739 [ex CAS 123733] | ICN-MHN 17113 | INHS 32939 [ex ASNP 88080];

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Farlowella curtirostra Myers, 1942								X	Ortega-Lara et al. (2012)
Farlowella gracilis Regan, 1904	X	X		X	-				Regan (1904) | BMNH 1902.5.29.180
Farlowella mariaelenae Martín Salazar, 1964					X				Retzer and Page (1997)
Farlowella mitoupibo Ballen, Urbano-Bonilla & Zamudio, 2016	X	X			X				Ballen et al. (2016b) | MPUJ 8481
Farlowella nattereri Steindachner, 1910				X					Retzer and Page (1997)
Farlowella oxyrryncha (Kner, 1853)				X	-				Arbeláez et al. (2004)
Farlowella smithi Fowler, 1913				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | ICN-MHN 5748 | IAvH-P 490
**Farlowella taphorni* Retzer & Page, 1997								X	IAvH-P 9800, 9801
Farlowella vittata Myers, 1942					X				Retzer and Page (1997) | Cala (1977)
Farlowella yarigui Ballen & Mojica, 2014	X	X				X			Ballen and Mojica (2014) | ICN-MHN 17819, 17789, 18889
**Lamontichthys filamentosus* (La Monte, 1935)				X					IAvH-P 1610, 1617
Lamontichthys llanero Taphorn & Lilyestrom, 1984					X				Urbano-Bonilla et al. (2009).
Lamontichthys maracaibero Taphorn & Lilyestrom, 1984								X	Ortega-Lara et al. (2012)
Sturisoma caquetae (Fowler, 1945)	X	X		X					Fowler (1945) | ANSP 71719
Sturisoma tenuirostre (Steindachner, 1910)					X				Cala (1977)
Sturisomatichthys aureus (Steindachner, 1900)	X	X				X	-	X	Steindachner (1900) | Maldonado-Ocampo et al. (2006b)
Sturisomatichthys festivus (Myers, 1942)								X	Ortega-Lara et al. (2012)
Sturisomatichthys leightoni (Regan, 1912)	X	X				X	X		Regan (1912c) | Eigenmann (1922) | BMNH 1909.7.23.45, 1909.7.23.46-4
Sturisomatichthys panamensis (Eigenmann & Eigenmann, 1889)						X	X	X	Eigenmann (1922) | Regan (1913)
Sturisomatichthys tamanae (Regan, 1912)	X	X				-	X	-	Regan (1912c) | BMNH 1910.7.11.133, BMNH 1910.7.11.134
Crossoloricaria cephalaspis Isbrücker, 1979	X	X			-	+			Isbrücker (1979) | BMNH 1947.7.1.228
Crossoloricaria variegata (Steindachner, 1879)						X	X	X	Eigenmann (1922) | Regan (1914)
Crossoloricaria venezuelae (Schultz, 1944)								X	Ortega-Lara et al. (2012)
Dasyloricaria filamentosa (Steindachner, 1878)						X		X	Steindachner (1878) | Londoño-Burbano and Reis (2016)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Dasyloricaria latiura (Eigenmann & Vance, 1912)							-	X	Eigenmann (1912) | FMNH 55115 | USNM 79219
Dasyloricaria paucisquama Londoño-Burbano & Reis, 2016	X	X				X			Londoño-Burbano and Reis (2016)
Dentectus barbarmatus Mártin Salazar, Isbrücker & Nijssen, 1982					X				Urbano-Bonilla et al. (2009).
Hemiodontichthys acipenserinus (Kner, 1853)				X					Mojica et al. (2005)
Limatulichthys griseus (Eigenmann, 1909)				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Loricaria cataphracta Linnaeus, 1758				X	X				Galvis et al. (2007b) | Galvis et al. (2007a)
Loricaria nickeriensis Isbrücker, 1979				X					Mojica et al. (2005)
Loricaria simillima Regan, 1904					X				Urbano-Bonilla et al. (2009).
Loricariichthys brunneus (Hancock, 1828)					X				Galvis et al. (2007a)
**Loricariichthys hauxwelli* (Hancock, 1828)				X					IAvH-P 12562
Pseudohemiodon Bleeker, 1862					X				Urbano-Bonilla et al. (2009).
Rhadinoloricaria laani (Nijssen & Isbrücker, 1988)				-	X				Nijssen and Isbrücker (1988) | ANSP 131483, 131484, 157750, 157940-41
Rhadinoloricaria listrorhinos (Nijssen & Isbrücker, 1988)	X	X		-	X				Nijssen and Isbrücker (1988) | ANSP 131482
Rhadinoloricaria rhami (Isbrücker & Nijssen, 1983)				X					Mojica et al. (2005)
Rineloricaria castroi Isbrücker & Nijssen, 1984				X					Arbeláez et al. (2004)
**Rineloricaria daraha* Rapp Py-Daniel & Fichberg, 2008				X					Bogotá-Gregory et al. (2016)
Rineloricaria eigenmanni (Pellegrin, 1908)					X				Galvis et al. (2007a)
Rineloricaria formosa Isbrücker & Nijssen, 1979				-	X				Isbrücker and Nijssen (1979) | FMNH 83713, 83714-15 | IRSNB 608-609 | MZUSP [ex IRSNB 608, MZUSP ex IRSNB 609] | ZMA 114922-23, 115182, 115196-97 | ZSM 25821
Rineloricaria jubata (Boulenger, 1902)							X	X	Eigenmann (1922) | Regan (1914)
Rineloricaria lanceolata (Günther, 1868)				X					Arbeláez et al. (2004)
Rineloricaria magdalenae (Steindachner, 1879)						X	-	X	Steindachner (1879a) | Eigenmann (1922)
Rineloricaria rupestris (Schultz, 1944)								X	Ortega-Lara et al. (2012)
Rineloricaria sneiderni (Fowler, 1944)	X	X					X		Fowler (1944) | ANSP 71433, 71434

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Spatuloricaria atratoensis Schultz, 1944	X	X						X	Schultz (1944b) | USNM 93810
Spatuloricaria caquetae (Fowler, 1943)	X	X		X					Fowler (1943) | ANSP 70526, 70527
Spatuloricaria curvispina (Dahl, 1942)	X	X				X			Dahl (1942)
Spatuloricaria euacanthagenys Isbrücker, 1979	X	X		X					Fowler (1943)
Spatuloricaria gymnogaster (Eigenmann & Vance, 1912)	X	X				X		X	Eigenmann (1912) | Villa-Navarro et al. (2006)
Spatuloricaria fimbriata (Eigenmann & Vance, 1912)						X		X	Eigenmann (1912) | Miles (1947)
Spatuloricaria lagoichthys (Schultz, 1944)								X	Miles (1947)
Spatuloricaria phelpsi Schultz, 1944								X	Ortega-Lara et al. (2012)
Acanthicus hystrix Spix & Agassiz, 1829				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Cala (1977) | ICN-MHN 596 | IAvH-P 2301
Baryancistrus beggini Lujan, Arce & Armbruster, 2009					X				Lujan et al. (2009)
Baryancistrus demantoides Werneke, Sabaj Pérez, Lujan & Armbruster, 2005					X				Ajiaco-Martínez et al. (2012c) | Ortega-Lara (2016)
Chaetostoma aburrense (Posada, 1909)	X	X				X			Posada (1909)
Chaetostoma anale (Fowler, 1943)	X	X		X					Fowler (1943) | ANSP 70525
Chaetostoma anomalum Regan, 1903								X	Ortega-Lara et al. (2012)
Chaetostoma brevilabiatum Dahl, 1942	X	X				X			Dahl (1943)
Chaetostoma dorsale Eigenmann, 1922					X				Urbano-Bonilla et al. (2009).
Chaetostoma fischeri Steindachner, 1879						X	X	X	Eigenmann (1922)
Chaetostoma floridablancaense Ardila Rodríguez, 2013	X	X				X			Ardila Rodríguez (2013b) | CAR 633, 104, 105, 417 | MBUCV 35676 | IMCN 5676
Chaetostoma formosae Ballen, 2011	X	X			X				Ballen (2011) | ICN-MHN 17114
Chaetostoma joropo Ballen, Urbano-Bonilla & Maldonado-Ocampo, 2016	X	X			X				Ballen et al. (2016a)
Chaetostoma lepturum Regan, 1912	X	X					X		Regan (1912c) | BMNH 1910.7.11.116–118
Chaetostoma leucomelas Eigenmann, 1918	X	X				X	X	X	Eigenmann (1918a) | Maldonado-Ocampo et al. (2006b) | Miles (1947)
Chaetostoma marginatum Regan, 1904						-	X		Regan (1913)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Chaetostoma milesi Fowler, 1941	X	X			-	X			Fowler (1941) | ANSP 69330
Chaetostoma niveum Fowler, 1944	X	X					X		Fowler (1944) | ANSP 71432
Chaetostoma palmeri Regan, 1912	X	X					X		Regan (1912c) | BMNH 1910.7.11.120–121
Chaetostoma patiae Fowler, 1945	X	X					X		Fowler (1945) | ANSP 71716, 71717
Chaetostoma paucispinis Regan, 1912	X	X					X		Regan (1912c) | BMNH 1910.7.11.119
Chaetostoma platyrhynchus (Fowler, 1943)				X	+				Fowler (1943) | ANSP 70512, 70513-15
Chaetostoma setosum Boulenger, 1887	X	X			-	+			Boulenger (1887) | BMNH 1880.2.26.9-10
Chaetostoma sovichthys Schultz, 1944								X	Ballen (2011)
Chaetostoma tachiraense Schultz, 1944								X	Ortega-Lara et al. (2012)
Chaetostoma thomsoni Regan, 1904	X	X				X			Regan (1904) | BMNH 1902.5.15.28-30
Chaetostoma vagum Fowler, 1943	X	X		X					Fowler (1943)
Cordylancistrus daguae (Eigenmann, 1912)	X	X				-	X		Eigenmann (1912) | FMNH 56052 [ex CM 4842], 56053-54 | CAS 56745 [ex IU 12698], 74161 [ex IU 12699]
Cordylancistrus pijao Provenzano R. & Villa-Navarro, 2017	X	X				X			Provenzano R. and Villa-Navarro (2017)
Dolichancistrus atratoensis (Dahl, 1960)	X	X						X	Dahl (1960c) | ICN-MHN 51, 46 (now apparently 48)
Dolichancistrus carnegiei (Eigenmann, 1916)	X	X				X			Eigenmann (1916) | FMNH 58350 [ex CM 7346], 58351 | CAS 77344 [ex IU 13661], 77345 [ex IU 13662]
Dolichancistrus cobrensis (Schultz, 1944)					+			X	Ballen and Vari (2012) | ICN-MHN 18009
Dolichancistrus fuesslii (Steindachner, 1911)	X	X			X				Steindachner (1911) | NMW 48026
'Hemiancistrus' guahiborum Werneke, Armbruster, Lujan & Taphorn, 2005					X				Maldonado-Ocampo et al. (2006a)
*'*Hemiancistrus*' subviridis* Werneke, Sabaj, Lujan & Armbruster, 2005					X				IMCN 5897, 6094, 6189, 6195, 6196, 6284, 6574, 6575
Hypancistrus contradens Armbruster, Lujan & Taphorn, 2007					X				Maldonado-Ocampo et al. (2008)
Hypancistrus debilittera Armbruster, Lujan & Taphorn, 2007					X				Ortega-Lara (2016) | IAvH-P 12471

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
**Hypancistrus furunculus* Armbruster, Lujan & Taphorn, 2007					X				Ortega-Lara (2016) | IMCN 5828, 6017, 6018, 6297, 6298, 6299, 6300
**Hypancistrus inspector* Armbruster, 2002					X				Ortega-Lara (2016)
Hypancistrus lunaorum Armbruster, Lujan & Taphorn, 2007					X				Maldonado-Ocampo et al. (2008) | IAvH-P 7044
Leporacanthicus galaxias Isbrücker & Nijssen, 1989					X				IAvH-P 7041
**Leporacanthicus triactis* Isbrücker, Nijssen & Nico, 1992					X				IMCN 5772, 5773, 5774
**Leptoancistrus canensis* (Meek & Hildebrand, 1913)								X	Maldonado-Ocampo et al. (2013b)
Leptoancistrus cordobensis Dahl, 1964	X	X				X		X	Dahl and Medem (1964) | IMCN 233, 250
Panaque cochliodon (Steindachner, 1879)	X	X	X			X			Steindachner (1879b) | NMW 47297-98
Panaque nigrolineatus (Peters, 1877)					X				Lujan et al. (2010) | Cala (1977)
Panaque suttonorum Schultz, 1944								X	Lujan et al. (2010)
**Panaque titan* Lujan, Hidalgo & Stewart 2010				X					IMCN 6059
Panaqolus albomaculatus (Kanazawa, 1958)				X					Galvis et al. (2007b)
Panaqolus maccus Schaefer & Stewart, 1993					X				Urbano-Bonilla et al. (2009).
Peckoltia brevis (La Monte, 1935)				X					Armbruster (2008)
**Peckoltia caenosa* Armbruster, 2008					X				IMCN 7061
Peckoltia lineola Armbruster, 2008					X				Armbruster (2008)
Peckoltia lujani Armbruster, Werneke & Tan, 2015					X				Armbruster et al. (2015)
Peckoltia sabaji Armbruster, 2003					X				Urbano-Bonilla et al. (2009).
Peckoltia vittata (Steindachner, 1881)					X				Armbruster (2008)
Peckoltichthys bachi (Boulenger, 1898)				X					Armbruster (2008)
Parancistrus Bleeker, 1862					X				Galvis et al. (2007a)
**Pseudoancistrus sidereus* Armbruster, 2004					X				IMCN 6232, 6234
Aphanotorulus ammophilus Armbruster & Page, 1996					X				Maldonado-Ocampo et al. (2008)
Aphanotorulus emarginatus (Valenciennes, 1840)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Ray and Armbruster (2016) | ICN-MHN 2543

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Aphanotorulus horridus (Kner, 1854)				X					Ray and Armbruster (2016)
Aphanotorulus unicolor (Steindachner, 1908)				X					Ray and Armbruster (2016)
Hypostomus annectens (Regan, 1904)							X		Eigenmann (1922)
Hypostomus argus (Fowler, 1943)				-	X				Fowler (1943) | ANSP 70510
Hypostomus carinatus (Steindachner, 1881)				X					Maldonado-Ocampo et al. (2008)
Hypostomus hemicochliodon Armbruster, 2003				X					Lasso et al. (2009) | IAvH-P 8910
'*Hypostomus*' *holostictus* (Regan, 1913)	X	X					X	X	Regan (1913) | BMNH 1913.10.1.57
Hypostomus hondae (Regan, 1912)			X			X	X	X	Regan (1912c) | Dahl (1955) | Eigenmann (1922)
Hypostomus niceforoi (Fowler, 1943)	X	X		X	X				Fowler (1943) | Urbano-Bonilla et al. (2009).
Hypostomus oculeus (Fowler, 1943)				X					Fowler (1943) | ANSP 70518, 70519-20
Hypostomus plecostomoides (Eigenmann, 1922)				X	X				Eigenmann (1922) | CAS 82501 [ex IU 15043] | IAvH-P 3045
Hypostomus plecostomus (Linnaeus, 1758)					X				Eigenmann (1922)
Hypostomus pyrineusi (Miranda Ribeiro, 1920)				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2008)
**Hypostomus robinii* Valenciennes, 1840					X				IAvH-P 423, 736, 4957, 5372, 5373, 5495, 5502, 5504
Hypostomus sculpodon Armbruster, 2003					X				IAvH-P 5614
Hypostomus varimaculosus (Fowler, 1945)				X					Fowler (1945) | ANSP 71707
Hypostomus wilsoni (Eigenmann, 1918)	X	X					X	X	Eigenmann (1918a) | Dahl (1955)
Isorineloricaria tenuicauda (Steindachner, 1878)	X	X				X			Steindachner (1878) | MSNG 8856 | NMW 42596, 44263-66, 44268), 44294 | ZMUC 85
Isorineloricaria villarsi (Lütken, 1874)					-			+	Ray and Armbruster (2016)
Pterygoplichthys gibbiceps (Kner, 1854)					X				Maldonado-Ocampo et al. (2006a)
Pterygoplichthys lituratus (Kner, 1854)				X					Mojica et al. (2005)
Pterygoplichthys multiradiatus (Hancock, 1828)					X				Maldonado-Ocampo et al. (2013a)
Pterygoplichthys pardalis (Castelnau, 1855)				X					Mojica et al. (2005)
Pterygoplichthys undecimalis (Steindachner, 1878)	X	X			-	X			Steindachner (1878) | NMW 47224, 47220-22

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Pterygoplichthys weberi Armbruster & Page, 2006				X					Armbruster and Page (2006) | ICN-MHN 13455 | FMNH 96959, 101378 | MSU 2736.2 | USNM 177204
**Pterygoplichthys zuliaensis* Weber, 1991								X	Ortega-Lara et al. (2012)
Ancistrus caucanus Fowler, 1943	X	X				X			Fowler (1943) | ANSP 70516
Ancistrus centrolepis Regan, 1913	X	X				-	X	X	Regan (1913) | Taphorn et al. (2013)
Ancistrus lineolatus Fowler, 1943	X	X		X					Fowler (1943) | ANSP 70517
Ancistrus macrophthalmus (Pellegrin, 1912)					X				Maldonado-Ocampo et al. (2006a)
Ancistrus martini Schultz, 1944								X	Taphorn et al. (2013)
Ancistrus tolima Taphorn, Armbruster, Villa-Navarro & Ray, 2013	X	X				X			Taphorn et al. (2013) | CZUT-IC 4040
Ancistrus triradiatus Eigenmann, 1918				-	X			-	Eigenmann (1918a)
Ancistrus vericaucanus Taphorn, Armbruster, Villa-Navarro & Ray, 2013	X	X				X			Taphorn et al. (2013)
Dekeyseria amazonica Rapp Py-Daniel, 1985				X					Mojica et al. (2005)
Dekeyseria brachyura (Kner, 1854)					X				Ortega-Lara (2016)
Dekeyseria pulchra (Steindachner, 1915)					X				Galvis et al. (2007a)
Dekeyseria scaphirhyncha (Kner, 1854)					X				Maldonado-Ocampo et al. (2006a)
Lasiancistrus caucanus Eigenmann, 1912						X	X	X	Eigenmann (1912) | Fowler (1945) | Dahl (1955)
Lasiancistrus guacharote (Valenciennes, 1840)								X	Ortega-Lara et al. (2012)
Lasiancistrus schomburgkii (Günther, 1864)				X					Armbruster (2005)
Lasiancistrus tentaculatus Armbruster, 2005					X				Armbruster (2005) | IAvH-P 5100-5105, 7692, 7982, 7983, 9487, 9595, 9596
Lithoxancistrus orinoco Isbrücker, Nijssen & Cala, 1988					X				Isbrücker et al. (1988) | ICN-MHN 1200, 1201 | ZMA 119882 | ZMUL 972/3482
**Pseudolithoxus anthrax* (Armbruster & Provenzano, 2000)					X				IMCN 6601, 6602, 6603,6604, 5874, 5880, 5881, 6063, 6064, 6231
Pseudolithoxus dumus (Armbruster & Provenzano, 2000)					X				Maldonado-Ocampo et al. (2006a)
**Pseudolithoxus kelsorum* Lujan & Birindelli, 2011					X				IMCN 5876, IMCN 5877

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Pseudolithoxus tigris (Armbruster & Provenzano, 2000)					X				Maldonado-Ocampo et al. (2006a)
Cetopsidae 15 spp (4 deleted from 2008)									
Cetopsidium morenoi (Fernández-Yépez, 1972)					X				Vari et al. (2005)
Cetopsidium pemon Vari, Ferraris & de Pinna, 2005					X				Vari et al. (2005)
Cetopsis amphiloxa (Eigenmann, 1914)							X	X	Eigenmann et al. (1914) | Vari et al. (2005)
Cetopsis baudoensis (Dahl, 1960)	X	X					X		Dahl (1960c) | ICN-MHN 118, 100
Cetopsis candiru Spix & Agassiz, 1829				X					Mojica et al. (2005)
Cetopsis coecutiens (Lichtenstein, 1819)				X	X				Vari et al. (2005) | Dahl (1960a)
Cetopsis fimbriata Vari, Ferraris & de Pinna 2005	X	X						X	Vari et al. (2005) | USNM 305348, 372825, 372826 | ICN-MHN 7272
Cetopsis jurubidae (Fowler, 1944)	X	X					X		Fowler (1944) | ANSP 71430
Cetopsis motatanensis (Schultz, 1944)								X	Ortega-Lara et al. (2012)
Cetopsis orinoco (Schultz, 1944)					X				Cala (1977); Vari et al. (2005)
Cetopsis othonops (Eigenmann, 1912)	X	X				X		X	Eigenmann (1912) | Vari et al. (2005)
Cetopsis umbrosa Vari, Ferraris & de Pinna 2005	X	X			X				Vari et al. (2005)
** *Denticetopsis seducta* Vari, Ferraris & de Pinna 2005					X				Vari et al. (2005)
Helogenes castaneus (Dahl, 1960)	X	X			X				Dahl (1960a)
Helogenes marmoratus Günther, 1803				X	X				Mojica et al. (2005) | Maldonado-Ocampo (2001)
Aspredinidae 18 spp (2 added and 2 deleted from 2008)									
Amaralia hypsiura (Kner, 1855)				X					Friel and Carvalho (2016)
Bunocephalus aleuropsis Cope, 1870				X	+				Cardoso (2008)
* *Bunocephalus aloikae* Hoedeman, 1961					X				Cardoso (2008)
Bunocephalus colombianus Eigenmann, 1912	X	X				X	X	X	Eigenmann (1912) | Cardoso (2008) | Miles (1945)
Bunocephalus coracoideus (Cope, 1874)				X					Mojica et al. (2005)
Bunocephalus knerii Steindachner, 1882				X					Cardoso (2008)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Bunocephalus verrucosus (Walbaum, 1792)				X					Bogotá-Gregory and Maldonado-Ocampo (2005)
Pseudobunocephalus amazonicus (Mees, 1989)				X					Friel (2008)
Pseudobunocephalus bifidus (Eigenmann, 1942)				X					Galvis et al. (2007b)
Pseudobunocephalus lundbergi Friel, 2008					X				Friel (2008)
**Pterobunocephalus depressus* Hasseman, 1911				X	X				IAvH-P 674, 8714, 8779, 8814, 8844, 8872, 8903, 11991
Dupouyichthys sapito Schultz, 1944						X		+	Mojica et al. (2000) | Ortega-Lara et al. (2012) | Miles (1945)
Hoplomyzon papillatus Stewart, 1985				X					Galvis et al. (2007b)
Hoplomyzon sexpapilostoma Taphorn & Marrero, 1990					X				Maldonado-Ocampo et al. (2008)
Xyliphius kryptos Taphorn & Lilyestrom, 1983								X	Ortega-Lara et al. (2012)
Xyliphius lepturus Orcés, 1962					X			-	Cala (1977) | ICN-MHN 1772
Xyliphius magdalenae Eigenmann, 1912	X	X				X			Eigenmann (1912) | FMNH 56039 [ex CM 4829]
Xyliphius melanopterus Orcés, 1962				X	X				Galvis et al. (2007b) | Urbano-Bonilla et al. (2009)
Auchenipteridae 46 spp (7 added and 4 deleted from 2008)									
Centromochlus altae Fowler, 1945	X	X		X	+				Fowler (1945) | ANSP 71700, 71701-04 | IAvH-P 551
Centromochlus existimatus Mees, 1974				X					Mojica et al. (2005)
Centromochlus heckelii (De Filippi, 1853)				X	X				Lasso et al. (2005) | Mojica et al. (2005) | IAvH-P 966, 1055, 3691, 10964 | ICN-MHN 952, 1927, 2716, 8549, 11950-11952, 12801
**Centromochlus macracanthus*, 2000				X					IAvH-P 14318
Centromochlus perugiae Steindachner, 1882				X					Arbeláez et al. (2004) | IAvH-P 9270-9271, 9284, 9287, 9300-9301, 9314-9315, 9332-9333, 9348-9349, 9361-9362, 9378-9379
Centromochlus reticulatus (Mees, 1974)				X	+				Mojica et al. (2005) | Galvis et al. (2007a)
Centromochlus romani (Mees, 1988)					X				Urbano-Bonilla et al. (2009).
Gelanoglanis stroudi Böhlke, 1980					X				Böhlke (1980) | ANSP 142937, 142938-39, 142940, 142941 | FMNH 83911, 83912 | MZUSP 14641
Tatia aulopygia (Kner, 1858)				X	-				IAvH-P 9108, 9134
Tatia dunni (Fowler, 1945)				X					Fowler (1945) | ANSP 71705, 71706

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Tatia galaxias Mees, 1974					X				Sarmento-Soares and Martins-Pinheiro (2008)
Tatia gyrina (Eigenmann & Allen, 1942)				X					Sarmento-Soares and Martins-Pinheiro (2008)
Tatia intermedia (Steindachner, 1877)				X	X				Sarmento-Soares and Martins-Pinheiro (2008) | IAvH-P 1232
**Tatia marthae* Vari & Ferraris, 2013					X				IAvH-P 12458, 12463, 12473, 12483, 12496, 12861, 12870, 12873
**Tatia nigra* Sarmento-Soares & Martins-Pinheiro, 2008				X	X				CZUT-IC 4441, 4544, IAvH-P 12862, 12874
**Tatia strigata* Soares-Porto, 1995				X	X				CZUT-IC 4527, IAvH-P 5634, 10049, 10761, 12577, 12579, 12581-12583
**Ageneiosus dentatus* Kner 1857					X				Galvis et al. (2007a) | Ribeiro et al. (2017)
Ageneiosus inermis (Linnaeus, 1766)				X	X				Mojica et al. (2005) | Dahl (1960a)
Ageneiosus magoi Castillo & Brull, 1989					X				Maldonado-Ocampo et al. (2013a)
Ageneiosus pardalis Lütken, 1874			X			X		X	Steindachner (1879a) | Dahl (1955)
Ageneiosus ucayalensis Castelnau, 1855				X	-				Mojica et al. (2005)
Ageneiosus vittatus Steindachner, 1908				X	-				ICN-MHN 5476, 5975-5976, 5978, 6605, 9178
**Asterophysus batrachus* Kner, 1858					X				Ortega-Lara (2016) | IMCN 5528, 5529, 5530, 5964, 6116, 6117, 6118, 6119, 6120, 6121, 6122, 6123, 6124, 6433, 6434
Tympanopleura atronasus (Eigenmann & Eigenmann, 1888)				X					Mojica et al. (2005)
Tympanopleura brevis (Steindachner, 1881)				X					Mojica et al. (2005)
Tympanopleura piperata Eigenmann, 1912				X					Mojica et al. (2005)
**Auchenipterichthys coracoideus* Eigenmann & Allen, 1942				X					Galvis et al. (2007b)
Auchenipterichthys longimanus (Günther, 1864)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Maldonado-Ocampo et al. (2006a) | IAvH-P 255, 5260
Auchenipterichthys punctatus (Valenciennes, 1840)				X	+				Bogotá-Gregory and Maldonado-Ocampo (2006a) | IAvH-P 254, 2393, 10008-10019
Auchenipterus ambyiacus Fowler, 1915				X	X				Ferraris and Vari (1999)
Auchenipterus nuchalis (Spix & Agassiz, 1829)				X	X				Maldonado-Ocampo et al. (2008) | Mojica et al. (2005)
Entomocorus gameroi Mago-Leccia, 1984					X				Reis and Borges (2006)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Epapterus dispilurus Cope, 1878				X					Mojica et al. (2005)
Liosomadoras morrowi Fowler, 1940				X					Bogotá-Gregory and Maldonado-Ocampo (2005)
Liosomadoras oncinus (Jardine, 1841)				X					Galvis et al. (2007b)
Pseudepapterus cucuhyensis Böhlke, 1951				X					Böhlke (1951)
Pseudepapterus hasemani (Steindachner, 1915)				X					Mojica et al. (2005)
Tetranematichthys wallacei Vari & Ferraris, 2006				X	X				Vari and Ferraris (2006) | IAvH-P 9084
Trachelyichthys decaradiatus Mees, 1974					X				Galvis et al. (2007a)
Trachelyopterichthys anduzei Ferraris & Fernandez, 1987					X				Maldonado-Ocampo et al. (2006a)
Trachelyopterichthys taeniatus (Kner, 1858)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Cala (1977) | CAS-SU 42795
Trachelyopterus fisheri (Eigenmann, 1916)	X	X				-		X	Eigenmann (1916) | FMNH 57695 [ex CM 6667a], 57696-98 | CAS 52136 [ex IU 13496], 57937 [ex IU 13495], 57938 [ex IU 13497] | USNM 76929
Trachelyopterus galeatus (Linnaeus, 1766)				X	X				Mojica et al. (2005) | Galvis et al. (2007a)
Trachelyopterus insignis (Steindachner, 1878)	X	X				X		X	Steindachner (1878) | Mojica et al. (2006a)
Trachelyopterus peloichthys (Schultz, 1944)								X	Ortega-Lara et al. (2012)
Trachycorystes trachycorystes (Valenciennes, 1840)					X				IAvH-P 12863, 12876, 12889
Doradidae 56 spp (7 added and 4 deleted from 2008)									
Acanthodoras cataphractus (Linnaeus, 1758)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Galvis et al. (2007a) | ICN-MHN 360, 2772, 4183, 5402
**Acanthodoras depressus* (Steindachner, 1881)				X					CZUT-IC 4312
Acanthodoras spinosissimus (Eigenmann & Eigenmann, 1888)				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Agamyxis albomaculatus (Peters, 1877)				-	X				Galvis et al. (2007a)
Agamyxis pectinifrons (Cope, 1870)				X					Mojica et al. (2005)
**Astrodoras* Bleeker, 1862				X					Roa-Fuentes et al. (2010)
Amblydoras affinis (Kner, 1855)				X	X				Mojica et al. (2005) | IAvH-P 747, 1075, 1181, 2807
Amblydoras bolivarensis (Fernández-Yépez, 1968)					X				Maldonado-Ocampo et al. (2006a)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Amblydoras gonzalezi (Fernández-Yépez 1968)				-	X				Galvis et al. (2007b)
Amblydoras monitor (Cope, 1872)				X					Mojica et al. (2005)
Amblydoras nauticus (Cope, 1874)				X					Mojica et al. (2005)
Anadoras grypus (Cope, 1872)				X					Mojica et al. (2005)
Anadoras regani (Steindachner, 1908)				X					Bogotá-Gregory and Maldonado-Ocampo (2005)
Hypodoras forficulatus Eigenmann, 1925				X					Mojica et al. (2005)
Physopyxis ananas Sousa & Rapp Py-Daniel, 2005				X	X				Maldonado-Ocampo et al. (2008)
Physopyxis lyra Cope, 1871				X					Mojica et al. (2005)
Scorpiodoras heckelii (Kner, 1855)				X	X				Correa (2003) | Galvis et al. (2007a)
Anduzedoras oxyrhynchus (Valenciennes, 1821)					X				Cala (1977)
Centrochir crocodili (Humboldt, 1821)	X	X				X			Humboldt and Valenciennes (1821)
Centrodoras brachiatus (Cope, 1872)				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | IAvH-P 405, 479
**Centrodoras hasemani* (Steindachner, 1915)				X					CZUT-IC 14832
Doras phlyzakion Sabaj Pérez & Brindelli, 2008				X					Sabaj Pérez and Birindelli (2008)
Doraops zuloagai Schultz, 1944			X					X	Ortega-Lara et al. (2012)
Hassar orestis (Steindachner, 1875)				X	X				Birindelli et al. (2011) | IAvH-P 6046
Hemidoras stenopeltis (Kner, 1855)				X					Mojica et al. (2005)
Hemidoras stuebelii (Steindachner, 1882)				X					Mojica et al. (2005)
Leptodoras acipenserinus (Günther, 1868)				X					Maldonado-Ocampo et al. (2008)
Leptodoras juruensis Boulenger, 1898				X					Mojica et al. (2005)
Leptodoras linnelli Eigenmann, 1912					X				IAvH-P 15132
Leptodoras nelsoni Sabaj Pérez, 2005				X	X				Sabaj (2005) | IAvH-P 904
**Leptodoras rogersae* Sabaj Pérez, 2005					X				CZUT-IC 9529
**Lithotodoras dorsalis* (Valenciennes, 1840)				X					CZUT-IC 14500
Megalodoras uranoscopus (Eigenmann & Eigenmann, 1888)				X					Mojica et al. (2005)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Nemadoras cristinae Sabaj Pérez, Arce H., Sousa & Birindelli, 2014				X	X				Sabaj Pérez et al. (2014)
Nemadoras elongatus (Boulenger, 1898)				X					Sabaj Pérez et al. (2014)
Nemadoras hemipeltis (Eigenmann, 1925)				X					Sabaj Pérez et al. (2014)
Nemadoras humeralis (Kner, 1855)				X					Sabaj Pérez et al. (2014)
Orinocodoras eigenmanni Myers, 1927					X				Maldonado-Ocampo (2001)
Opsodoras boulengeri Steindachner, 1915				X					Mojica et al. (2005)
Opsodoras morrisi Eigenmann, 1925				X					Bogotá-Gregory and Maldonado-Ocampo (2006a)
Ossancora punctata (Kner, 1853)				X					Birindelli and Sabaj Pérez (2011)
Oxydoras niger (Valenciennes, 1821)				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Oxydoras sifontesi Fernández-Yépez, 1968					X				Maldonado-Ocampo et al. (2006a) | CZUT-IC 9380
Platydoras armatulus (Valenciennes, 1840)				X	X				Piorski et al. (2008)
Platydoras hancockii (Valenciennes, 1840)					X				Cala (1977)
Pterodoras granulosus (Valenciennes, 1821)				X					Mojica et al. (2005)
Pterodoras rivasi (Fernández-Yépez, 1950)				-	X				Birindelli (2014)
**Rhinodoras boehlkei* Glodek, Whitmire & Orcés V., 1976				X					CZUT-IC 12272, 12318
Rhinodoras gallagheri Sabaj, Taphorn & Castillo G., 2008					X				Maldonado-Ocampo et al. (2008)
Rhinodoras thomersoni Taphorn & Lilyestrom, 1984			X					X	Ortega-Lara et al. (2012)
Tenellus leporhinus (Eigenmann, 1912)				-	X				Sabaj Pérez et al. (2014)
Tenellus ternetzi (Eigenmann, 1925)				X	+				Sabaj Pérez et al. (2014)
Tenellus trimaculatus (Boulenger, 1898)				X					Mojica et al. (2005)
Trachydoras microstomus (Eigenmann, 1912)				-	+				IAvH-P 10752
Trachydoras nattereri (Steindachner, 1881)				X					Mojica et al. (2005)
Trachydoras steindachneri (Perugia, 1897)				X					Mojica et al. (2005)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Ariidae 1 sp									
Notarius bonillai (Miles, 1945)	X	X	X			X		+	Miles (1945) | Acero and Betancur-R (2006)
Heptapteridae 52 spp (14 added and 7 deleted from 2008)									
**Brachyrhamdia imitator* Myers, 1927					X				IMCN 5691
**Brachyrhamdia meesi* Sands & Black, 1985				X					IAvH-P 11146
**Brachyrhamdia thayeria* Slobodian & Bockmann, 2013				X					Galvis et al. (2007b)
Cetopsorhamdia boquillae Eigenmann, 1922	X	X				X			Eigenmann (1922) | CAS 63607 [ex IU 15004] | FMNH 55212 [ex CM 3923], 55213 [ex CM 3924]
Cetopsorhamdia molinae Miles, 1943	X	X				X			Miles (1943)
Cetopsorhamdia nasus Eigenmann & Fisher, 1916	X	X				X			Eigenmann (1916) | FMNH 58126 [ex CM 7124]
Cetopsorhamdia orinoco Schultz, 1944					X				Urbano-Bonilla et al. (2009).
Cetopsorhamdia picklei Schultz, 1944					-			X	Ortega-Lara et al. (2012)
Chasmocranus rosae Eigenmann, 1922	X	X			X				Eigenmann (1922) | FMNH 55140 [ex CM 3841], 55141 [?CM 3842] | CAS 75751 [ex IU 15019]
Gladioglanis conquistador Lundberg, Bornbusch & Mago-Leccia, 1991				X					Galvis et al. (2007b)
**Gladioglanis machadoi* Ferraris & Mago-Leccia, 1989				X	X				Maldonado-Ocampo et al. (2006a) | CZUT-IC 5091, 5126
Goeldiella eques (Müller & Troschel, 1848)				X	X				Correa (2003) | Maldonado-Ocampo (2001)
Heptapterus panamensis Bussing, 1970								X	IAvH-P 7273-7274
Imparfinis microps Eigenmann & Fisher, 1916	X	X			X				Eigenmann (1916) | FMNH 57793 [ex CM 6776 not 8778]
Imparfinis nemacheir (Eigenmann & Fisher, 1916)						X	X	X	Eigenmann (1916) | Eigenmann (1922)
Imparfinis pristos Mees & Cala, 1989					X				Mees and Cala (1989) | ICN-MHN 1401, 1402 | RMNH 30544
Imparfinis pseudonemacheir Mees & Cala, 1989					X				Mees and Cala (1989)
Imparfinis spurrellii (Regan, 1913)	X	X					X		Regan (1913) | BMNH 1913.10.1.41
Imparfinis stictonotus (Fowler, 1940)				X					Fowler (1945)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Imparfinis timana Ortega-Lara, Milani, DoNascimiento, Villa-Navarro & Maldonado-Ocampo, 2011	X	X				X			Ortega-Lara et al. (2011) | IAvH-P 10696
Imparfinis usmai Ortega-Lara, Milani, DoNascimiento, Villa-Navarro & Maldonado-Ocampo, 2011	X	X				X	X		Ortega-Lara et al. (2011) | IMCN 4812
Mastiglanis asopos Bockmann, 1994				X					Galvis et al. (2007b)
Myoglanis koepckei Chang, 1999				X					Galvis et al. (2007b)
Nemuroglanis mariai (Schultz, 1944)	X	X			X				Schultz (1944a) | USNM 121251
**Nemuroglanis pauciradiatus* Ferraris, 1988					X				IAvH-P
Pariolius armillatus (Mees, 1987)				X					IAvH-P 8680, 8935, 9003, 9087, 9113, 9389, 9433
**Phenacorhamdia anisura* (Mees, 1987)					X				IAvH-P 12894
Phenacorhamdia macarenensis Dahl, 1961	X	X			X				Dahl (1961)
Phenacorhamdia nigrolineata Zarske, 1998				X					Maldonado-Ocampo et al. (2008)
**Phenacorhamdia provenzanoi* DoNascimiento & Milani, 2008					X				CZUT-IC 6351, 6881, 6988
**Phenacorhamdia taphorni* DoNascimiento & Milani, 2008					X				IAvH-P 7932, 9254, 9594, 10727
Pimelodella chagresi (Steindachner, 1876)						X	X	X	Fowler (1944) | Eigenmann (1922)
Pimelodella conquetaensis Ahl, 1925	X	X		X					Ahl (1925) | ZMB 32030
Pimelodella cristata (Müller & Troschel, 1848)				X	X				Arbeláez et al. (2004) | Urbano-Bonilla et al. (2009).
**Pimelodella cruxenti* Fernández-Yépez, 1950					X				CZUT-IC 7180, 7192
Pimelodella eutaenia Regan, 1913	X	X				-	X	X	Regan (1913) | BMNH 1913.10.1.37–40
Pimelodella figueroai Dahl, 1961	X	X			X				Dahl (1961)
Pimelodella floridablancaensis Ardila Rodríguez, 2017	X	X				X			Ardila Rodríguez (2017a)
Pimelodella geryi Hoedeman, 1961				X					Arbeláez et al. (2004)
Pimelodella gracilis (Valenciennes, 1835)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Lasso et al. (2005) | IAvH-P 1847, 1967, 3724, 3725-3729, 10004-10005 | ICN-MHN 1816, 3731, 1909, 2179, 5512, 5654

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Pimelodella grisea (Regan, 1903)							X		Regan (1913)
Pimelodella linami Schultz, 1944					X				Galvis et al. (2007a)
Pimelodella macrocephala (Miles, 1943)	X	X	X			X			Miles (1943) | MCZ 35876 | USNM 120157
Pimelodella metae Eigenmann, 1917					X				Eigenmann (1917b) | CAS [ex IU 13768] | FMNH 58441 [ex CM 7441 or 7141], 58442 | ICN-MHN 17128
Pimelodella modestus (Günther, 1860)							X		Eigenmann (1922)
Pimelodella odynea Schultz, 1944								X	Ortega-Lara et al. (2012)
Pimelodella pallida Dahl, 1961	X	X			X				Dahl (1961)
Pimelodella reyesi Dahl, 1964	X	X						X	Dahl and Medem (1964)
**Rhamdia guatemalensis* (Günther, 1864)						X	X	X	Hernández et al. (2015)
Rhamdia laukidi Bleeker, 1858					X				Hernández et al. (2015)
Rhamdia quelen (Quoy & Gaymard, 1824)				X	X	-	-	-	Bogotá-Gregory and Maldonado-Ocampo (2006a) | Eigenmann (1922) | IAvH-P 6182, 6223 | ICN-MHN 5029, 6579, 6591
**Rhamdia saijaensis* Rendahl, 1941	X	X					X		Rendahl (1941)
Pimelodidae 53 spp (3 added and 4 deleted from 2008)									
Aguarunichthys inpai Zuanon, Rapp Py-Daniel & Jégu, 1993				X					Mojica et al. (2005)
Brachyplatystoma filamentosum (Lichtenstein, 1819)			X	X	X				Ajiaco-Martínez et al. 2012a)
Brachyplatystoma juruense (Boulenger, 1898)			X	X	X				Ramírez-Gil et al. (2012a) | Cala (1977)
Brachyplatystoma platynemum Boulenger, 1898			X	X	X				Ramírez-Gil et al. (2012b)
Brachyplatystoma rousseauxii (Castelnau, 1855)			X	X	X				Agudelo-Córdoba et al. (2012)
Brachyplatystoma tigrinum (Britski, 1981)				X					Mojica et al. (2005)
Brachyplatystoma vaillantii (Valenciennes, 1840)			X	X	X				Ajiaco-Martínez (2012b) | Dahl (1961)
Platynematichthys notatus (Jardine, 1841)				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2004)
Calophysus macropterus (Lichtenstein, 1819)				X	X				Dahl (1961) | Mojica et al. (2005) | IAvH-P 2210 | ICN-MHN 7889, 8158

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Cheirocerus abuelo (Schultz, 1944)								X	Ortega-Lara et al. (2012)
Cheirocerus goeldii (Steindachner, 1908)				X					Mojica et al. (2005)
Duopalatinus peruanus Eigenmann & Allen, 1942					X				MPUJ
**Exallodontus aguanai* Lundberg, Mago-Leccia & Nass, 1991					X				CZUT-IC 9407, 9420, 9553, 9660, 9708, 9727, 9733, 9745, 9842
Hemisorubim platyrhynchos (Valenciennes, 1840)				X	X				Maldonado-Ocampo et al. (2006a) | Mojica et al. (2005)
Hypophthalmus edentatus Spix & Agassiz, 1829				X	X				Mojica et al. (2005) | Galvis et al. (2007a)
Hypophthalmus fimbriatus Kner, 1858				X					Mojica et al. (2005)
Hypophthalmus marginatus Valenciennes, 1840				X	X				Mojica et al. (2005) | Lasso et al. (2005) | ICN-MHN 8228
Hypophthalmus oremaculatus Nani & Fuster, 1947				X	+				Mojica et al. (2005) | Littmann et al. (2015)
Leiarius marmoratus (Gill, 1870)				X	X				Mojica et al. (2005) | Eigenmann (1922)
Leiarius perruno (Schultz, 1944)				-				+	Ortega-Lara et al. (2012)
Leiarius pictus (Müller & Troschel, 1849)				X	X				Lasso et al. (2005) | Correa (2003) | IMCN 842
Megalonema orixanthum Lunberg & Dahdul, 2008					X				Lundberg and Dahdul (2008) | ANSP 187449 (ex ANSP 148143)
Megalonema platycephalum Eigenmann, 1912				-	X				Dahl (1961)}
Megalonema psammium Schultz, 1944								X	Ortega-Lara et al. (2012)
Megalonema xanthum Eigenmann, 1912	X	X	X			X			Eigenmann (1912) | FMNH 56032 [ex CM 4822] | AMNH 5340 | BMNH 1920.12.20.112-113, 1924.3.3.83-84 | CAS 63674-75 [ex IU 12681-82] | FMNH 10251, 10284-89, 77909, 56032-33, 69818, 95984 | MCZ 30961 | UMMZ 190406 | USNM 76930, 79222, 167852
Phractocephalus hemioliopterus (Bloch & Schneider, 1801)				X	X				Mojica et al. (2005) | Dahl (1961)
Pimelodina flavipinnis Steindachner, 1877				X	X				Lasso et al. (2005) | Mojica et al. (2005) | ICN-MHN 6874, 8143
Pimelodus albofasciatus Mees, 1974				+	X				Lasso et al. (2005) | IAvH-P 256, 503, 836, 477, 2150, 2677, 2731, 6023, 8754, 8821, 8850, 8913 | ICN-MHN 1259, 1951, 1798, 3725, 3726 | 3822, 3386
Pimelodus blochii Valenciennes, 1840				X	X	X	X	X	Mojica et al. (2005) | Galvis et al. (2007a) | Mojica et al. (2006a) | Maldonado-Ocampo et al. (2013b)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Pimelodus coprophagus Schultz, 1944			X					X	Ortega-Lara et al. (2012)
Pimelodus crypticus Villa-Navarro & Cala, 2017	X	X				X			Villa-Navarro et al. (2017)
Pimelodus garciabarrigai Dahl, 1960	X	X			X				Dahl (1961) | ICN-MHN 744, ICN-MHN 410
Pimelodus grosskopfii Steindachner, 1879	X	X	X			X	-	-	Steindachner (1879b) | NMW 45781-45782
Pimelodus navarroi Schultz, 1944								X	Mojica (1999) | ICN-MHN 2150
Pimelodus ornatus Kner, 1858				X	X				Mojica et al. (2005) | Dahl (1961)
Pimelodus pictus Steindachner, 1877				X	X				Mojica et al. (2005) | Galvis et al. (2007a)
Pimelodus punctatus (Meek & Hildebrand, 1913)							+	X	Maldonado-Ocampo et al. (2013b) | Villa-Navarro et al. (2017)
Pimelodus yuma Villa-Navarro & Acero P., 2017	X	X				X		X	Villa-Navarro et al. (2017)
Pinirampus pirinampu (Spix & Agassiz, 1829)				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Platysilurus malarmo Schultz, 1944			X					X	Ortega-Lara et al. (2012)
Platysilurus mucosus (Vaillant, 1880)				X	X				Mojica et al. (2005) | Galvis et al. (2007a)
Platystomatichthys sturio (Kner, 1858)				X					Mojica et al. (2005)
Pseudoplatystoma magdaleniatum Buitrago-Suárez & Burr, 2007	X	X	X			X			Buitrago-Suárez and Burr (2007) | CAS 19165 | FMNH 56278, 59234
Pseudoplatystoma metaense Buitrago-Suárez & Burr, 2007			X		X				Buitrago-Suárez and Burr (2007) | ANSP 146858, 128135, 149541
Pseudoplatystoma orinocoense Buitrago-Suárez & Burr, 2007			X		X				Buitrago-Suárez and Burr (2007)
Pseudoplatystoma punctifer (Castelnau, 1855)			X	X					Buitrago-Suárez and Burr (2007)
Pseudoplatystoma tigrinum (Valenciennes, 1840)			X	X					Buitrago-Suárez and Burr (2007)
Sorubim cuspicaudus Littmann, Burr & Nass, 2000			X			X		+	Littmann et al. (2000) | AUM 28756 | CAS 150404, 150406 | EBRG 8216 | FMNH 56223, 60305, 107492 | IAvH-P 11809 | INHS 35428;
Sorubim elongatus Littmann, Burr, Schmidt & Isern, 2001				X	X				Littmann et al. (2001)
Sorubim lima (Bloch & Schneider, 1801)			X	X	X				Littmann (2007) | Dahl (1961)
Sorubim maniradii Littmann, Burr & Buitrago-Suarez, 2001				X					Mojica et al. (2005)
Sorubimichthys planiceps (Spix & Agassiz, 1829)			X	X	X				Mojica et al. (2005) | Dahl (1961) | ICN-MHN 7880, 9938, 17351

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Zungaro zungaro (Humboldt, 1821)			X	X	X				Mojica et al. (2005) |
Pseudopimelodidae 12 spp (1 added from 2008)									
Batrochoglanis acanthochiroides (Günther, 1942)							-	+	Ortega-Lara et al. (2012)
Batrochoglanis raninus (Valenciennes, 1840)				X	-				Bogotá-Gregory and Maldonado-Ocampo (2005)
Batrochoglanis transmontanus (Regan, 1913)						-	X	X	Regan (1913) | Maldonado-Ocampo et al. (2013b)
Batrochoglanis villosus (Eigenmann, 1912)				-	+				Lasso et al. 2004, Bogotá-Gregory and Maldonado-Ocampo 2006, Maldonado-Ocampo et al. 2008, Lasso et al. 2009 | IAvH-P 5705, 10059, 10060, 10061, 10062, 10063, 10064, 10065, 10066, 10743, 10798, 12466, 12467, 12481, 12867, 12880, 12913
Cephalosilurus apurensis (Mees, 1978)					X				Lasso et al. (2005) | IAvH-P 3731
Cruciglanis pacifici Ortega-Lara & Lehmann, 2006	X	X	X				X		Ortega-Lara and Lehmann (2006) | IMCN 2359 | IAvH-P 7505
Microglanis iheringi Gomes, 1946					X				Cala (1977)
Microglanis poecilus Eigenmann, 1912				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Microglanis secundus Mees, 1974					X			-	Lasso et al. (2005) | ICN-MHN 1912
Pseudopimelodus bufonius (Valenciennes, 1840)				X	X	-		X	Lasso et al. (2005) | Ortega-Lara et al. (2012) | IAvH-P 3371, 9198-9199, 11294, 12291 | ICN-MHN 772, 6582
Pseudopimelodus schultzi (Dahl, 1955)	X	X	X		-	X		X	Dahl (1955) | Mojica et al. (2006a)
Rhyacoglanis annulatus Shibatta & Vari, 2017					X				Shibatta and Vari (2017)
Batrachoidiformes 3 spp									
Batrachoididae									
Daector gerringi (Rendahl, 1941)	X	X						X	Rendahl (1941) | NRM 10651
Daector quadrizonatus (Eigenmann, 1922)	X	X					-	X	Eigenmann (1922) | FMNH [ex CM 3921]
Thalassophryne amazonica Steindachner, 1876				X					Mojica et al. (2005)
Gobiiformes 1 sp (1 deleted from 2008)									
Eleotridae									
Microphilypnus ternetzi Myers, 1927				+	X				Caires and Figueiredo (2011) | Galvis et al. (2007a)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Synbranchiformes 1 sp									
Synbranchidae									
Synbranchus marmoratus Bloch, 1795				X	X	X	X	X	Mojica et al. (2005) | Fowler (1943) | Galvis et al. (2007a) | Steindachner (1880) | Maldonado-Ocampo et al. (2013b) | Regan (1913)
Pleuronectiformes 5 spp (2 added and 2 deleted from 2008)									
Achiridae									
Achirus novoae Cervigón, 1982					X				Maldonado-Ocampo et al. (2006a)
**Apionichthys nattereri* (Steindachner, 1876)				X					Mojica et al. (2005)
Apionichthys sauli Ramos, 2003					X				Ramos (2003b) | ANSP 176081, 163851-53,163854, 163855-56 | MZUSP 52055 | UFPB 3596
Hypoclinemus mentalis (Günther, 1862)				X	X				Mojica et al. (2005) | Lasso et al. (2009) | IMCN 2657, 2662 | IAvH-P 10784-10787
Trinectes hubbsbollinger Duplain, Chapleau & Munroe, 2012	X	X					X		Duplain et al. (2012) | BMNH 1915.10.1.19,
Ovalentaria *incertae sedis*									
Polycentridae 1 sp									
Monocirrhus polyacanthus Heckel, 1840				X	X				Arbeláez et al. (2004) | Cala (1977)
Cichliformes 94 spp (8 added and 30 deleted from 2008)									
Cichlidae									
Cichla intermedia Machado-Allison, 1971					X				Maldonado-Ocampo (2001)
Cichla monoculus Spix & Agassiz, 1831				X	X				Mojica et al. (2005) | Maldonado-Ocampo et al. (2006a)
Cichla orinocensis Humboldt, 1821				X	X				Kullander and Ferreira (2006)
Cichla temensis Humboldt, 1821				X	X				Galvis et al. (2007b) | Cala (1977)
Chaetobranchus flavescens Heckel, 1840				X	X				Kullander (1986) | Galvis et al. (2007a)
Acarichthys heckelii (Müller & Troschel, 1849)				X					Kullander (1986)
Biotoecus dicentrarchus Kullander, 1989					X				Kullander (1989a) | ICN-MHN 1400 | FMNH 85650, 105089 | NRM 16662, 37078
Crenicara punctulatum (Günther, 1863)				X					Mojica et al. (2005)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Crenicichla alta Eigenmann, 1912				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Maldonado-Ocampo et al. (2006a)
Crenicichla anthurus Cope, 1872				X	X				Correa (2003) | Galvis et al. (2007a)
Crenicichla geayi Pellegrin, 1903					X				Regan (1905)
Crenicichla johanna Heckel, 1840				X	X				Mojica et al. (2005)
Crenicichla lenticulata Heckel, 1840				X	X				Correa (2003) | Cala (1977)
Crenicichla lugubris Heckel, 1840				X	X				Fowler (1943) | IAvH-P 389, 2327, 4893, 10110 | ICN-MHN 867, 877, 884, 1553, 1668, 2286
Crenicichla monicae Kullander & Varella, 2015				X					Kullander and Varella (2015)
Crenicichla reticulata (Heckel, 1840)				X	-				Kullander (1986)
Crenicichla strigata Günther, 1862				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | ICN-MHN 2594, 10233
Crenicichla sveni Ploeg, 1991					X				Ploeg (1991) | RMNH 31622, 31623 | ZMA 120388
**Crenicichla zebrina* Montaña, López-Fernández & Taphorn 2008					X				IMCN 6476
Dicrossus filamentosus (Ladiges, 1958)					X				Cala (1977)
Dicrossus gladicauda Schindler & Staeck, 2008					X				Schindler and Staeck (2008) | MTDF 31312, 33313-18
Apistogramma agassizii (Steindachner, 1875)				X					Kullander (1986)
Apistogramma alacrina Kullander, 2004	X	X		X	X				Kullander (2004) | UF 33670, 128785, 33687, 33717 | CAS 50638 | ICNM-NHN 6735 | NRM 27040, 33375, 36102
Apistogramma bitaeniata Pellegrin, 1936				X					Kullander (1986)
Apistogramma cacatuoides Hoedeman, 1951				X					Kullander (1986)
Apistogramma cruzi Kullander, 1986				X					Kullander (1986)
Apistogramma diplotaenia Kullander, 1987				X					Bogotá-Gregory and Maldonado-Ocampo (2005)
Apistogramma eunotus Kullander, 1981				X					Kullander (1986) | NRM 17784
**Apistogramma flabellicauda* Mesa S. & Lasso, 2011				X	X				CZUT-IC 1494, IAvH-P 10087, 10089-10092, 10094-10098
Apistogramma hoignei Meinken, 1965					X				Urbano-Bonilla et al. (2009).
Apistogramma hongsloi Kullander, 1979				-	X				Kullander (1979) | NRM 11234, 11235-39

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Apistogramma iniridae Kullander, 1979	X	X		X	X				Kullander (1979) | Bogotá-Gregory and Maldonado-Ocampo (2005)
Apistogramma lineata Mesa S. & Lasso, 2011	X	X			X				Mesa S and Lasso (2011b)
Apistogramma macmasteri Kullander, 1979	X	X			X				Kullander (1979) | AMNH 22733 | FMNH 55218 [ex CM 3930] | ICN-MHN 17117 | NRM 11240, 11241-44
Apistogramma megaptera Mesa & Lasso, 2011					X				Mesa Salazar and Lasso (2011a)
Apistogramma minima Mesa S. & Lasso, 2011					X				Mesa S and Lasso (2011b) | IAvH-P 11876
Apistogramma piaroa Mesa S. & Lasso, 2011					X				Mesa S and Lasso (2011b)
Apistogramma velifera Staeck, 2003					X				Mesa S and Lasso (2011b)
Apistogramma viejita Kullander, 1979					X				Kullander (1979) | NRM 11231, 11232
Apistogrammoides pucallpaensis Meinken, 1965				X					Kullander (1986)
Biotodoma cupido (Heckel, 1840)				X					Mojica et al. (2005)
Biotodoma wavrini (Gosse, 1963)				X	X				Maldonado-Ocampo et al. (2006a) | Arbeláez et al. (2004)
Geophagus abalios López-Fernández & Taphorn, 2004				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Galvis et al. (2007a)
Geophagus crassilabris Steindachner, 1876							X		ICN-MHN 98
Geophagus dicrozoster López-Fernández & Taphorn, 2004					X				Maldonado-Ocampo et al. (2006a)
Geophagus megasema Heckel, 1840				X					Bogotá-Gregory and Maldonado-Ocampo (2005)
Geophagus pellegrini Regan, 1912	X	X					X	X	Regan (1912a) | Eigenmann (1922)
Geophagus steindachneri Eigenmann & Hildebrand, 1910						X		X	Eigenmann (1910) | Ortega-Lara et al. (2012)
Geophagus surinamensis (Bloch, 1791)				X					Correa (2003)
Geophagus taeniopareius Kullander & Royero, 1992					X				Maldonado-Ocampo et al. (2006a)
Geophagus winemilleri López-Fernández & Taphorn, 2004				X	X				Bogotá-Gregory and Maldonado-Ocampo (2005) | Maldonado-Ocampo and Bogotá-Gregory (2007)
Mikrogeophagus ramirezi (Myers & Harry, 1948)					X				Cala (1977)
Satanoperca daemon (Heckel, 1840)				X	X				Correa (2003) | Maldonado-Ocampo et al. (2006a)
Satanoperca jurupari (Heckel, 1840)				X					Kullander (1986)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Satanoperca mapiritensis (Fernández-Yépez, 1950)					X				Galvis et al. (2007a)
Astronotus ocellatus (Agassiz, 1831)				X	X				Mojica et al. (2005) | Galvis et al. (2007a)
Acaronia nassa (Heckel, 1840)				X					Bogotá-Gregory and Maldonado-Ocampo (2006a) | IAvH-P 5308
Acaronia vultuosa Kullander, 1989				-	X				Kullander (1989b)
Aequidens diadema (Heckel, 1840)				X	X				Arbeláez et al. (2004) | Maldonado-Ocampo et al. (2006a)
Aequidens metae Eigenmann, 1922				-	X				Eigenmann (1922) | CAS 66884 [ex IU 13967], 66983 [ex IU 13967] | IAvH-P 3162
Aequidens tetramerus (Heckel, 1840)				X	X				Mojica et al. (2005)
Andinoacara biseriatus (Regan, 1913)	X	X					X	X	Regan (1913) | Eigenmann (1922)
Andinoacara latifrons (Steindachner, 1878)	X	X				X	X	X	Steindachner (1878) | Maldonado-Ocampo et al. (2013b) | Eigenmann (1922)
Andinoacara sapayensis (Regan, 1903)							X		Eigenmann (1922)
Bujurquina mariae (Eigenmann, 1922)	X	X		-	X				Eigenmann (1922)
Bujurquina moriorum Kullander, 1986				X					Kullander (1986)
Bujurquina peregrinabunda Kullander, 1986				X					Kullander (1986)
Bujurquina syspilus (Cope, 1872)				X					Mojica (1999) | ICN-MHN 1523, 1529
Chocoheros microlepis (Dahl, 1960)	X	X					X		Dahl (1960c) | ICN-MHN 95, 95a
Cichlasoma amazonarum Kullander, 1983				X					Kullander (1986)
Cichlasoma gephyrum Eigenmann, 1922	X	X					X		Eigenmann (1922) | FMNH 58614 [ex CM 7639], 58615 [ex CM 7639] | CAS 66956 [ex IU 14171]
Cichlasoma orinocense Kullander, 1983					X				Kullander (1983) | ANSP 127364, 127364, 127397 | FMNH 84008 | NRM 39282
Laetacara flavilabris (Cope, 1870)				X					IMCN 6026
**Laetacara fulvipinnis* Staeck & Schindler, 2007					X				CZUT-IC 8653
Laetacara thayeri (Steindachner, 1875)				X					Mojica et al. (2005)
Caquetaia kraussii (Steindachner, 1879)						X	-	X	Steindachner (1878) | Eigenmann (1922)
Caquetaia myersi (Schultz, 1944)				X					Schultz (1944c) | USNM 120533, 120534

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Heroina isonycterina Kullander, 1996				X					Kullander (1996)
Heros efasciatus Heckel, 1840				X					Kullander (1986)
Heros severus Heckel, 1840				X	X				Correa (2003) | Cala (1977)
Hoplarchus psittacus (Heckel, 1840)				X	X				Bogotá-Gregory and Maldonado-Ocampo (2006a) | Maldonado-Ocampo et al. (2006a) | IAvH-P 2224
Hypselecara coryphaenoides (Heckel, 1840)				X	X				Arbeláez et al. (2004) | Galvis et al. (2007a)
Hypselecara temporalis (Günther, 1862)				X					Kullander (1986)
Kronoheros umbrifer (Meek & Hildebrand, 1913)			X			X		X	Eigenmann (1922)
Mesoheros atromaculatus (Regan, 1912)	X	X					X	X	Regan (1912a) | Eigenmann (1922)
Mesoheros ornatus (Regan, 1905)							X	+	Fowler (1944) | Eigenmann (1922)
Mesonauta egregius Kullander & Silfvergrip, 1991					X				Kullander and Silfvergrip (1991) | FMNH 92863 | ICNMNH 1686 [ex NRM 43043] | NRM 11302, 12280
Mesonauta insignis (Heckel, 1840)				X	X				Kullander (1986) | Kullander and Silfvergrip (1991)
Mesonauta mirificus Kullander & Silfvergrip, 1991				X					Kullander and Silfvergrip (1991)
Pterophyllum altum Pellegrin, 1903			X		X				Cala (1977)
Pterophyllum scalare (Schultze, 1823)				X					Arbeláez et al. (2004)
Symphysodon aequifasciatus Pellegrin, 1904				X					Correa (2003)
Uaru amphiacanthoides Heckel, 1840				X					Correa (2003)
Uaru fernandezyepezi Stawikowski, 1989					X				Galvis et al. (2007a)
Beloniformes 4 spp (1 deleted from 2008)									
Belonidae									
Belonion dibranchodon Collette, 1966				X	X				Correa (2003) | Maldonado-Ocampo (2001)
Potamorrhaphis guianensis (Jardine, 1843)				X	X				Galvis et al. (2007b); Cala (1977)
Potamorrhaphis petersi Collette, 1974					X				Galvis et al. (2007a)
Pseudotylosurus microps (Günther, 1866)				X	X				Mojica et al. (2005) | Maldonado-Ocampo (2001)
Cyprinodontiformes 42 spp (7 added and 3 deleted from 2008)									

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Cynolebiidae 24 spp (5 added and 2 deleted from 2008)									
Anablepsoides atratus (Garman, 1895)				X					NRM 14686
Anablepsoides elongatus (Fels & de Rham, 1981)				X					Correa (2003)
Anablepsoides ophiomimus (Huber, 1992)				X					Correa (2003)
Anablepsoides ornatus (Garman, 1895)				X					Mojica et al. (2005)
Anablepsoides rubrolineatus (Fels & de Rham, 1981)				X					Mojica et al. (2005)
Anablepsoides taeniatus (Fowler, 1945)	X	X		X					Fowler (1945) | ANSP 71720,71721
Anablepsoides tessellatus (Huber, 1992)	X	X			X				Huber (1992) | ANSP 139468, 168979
Austrofundulus guajira Hrbek, Taphorn & Thomerson, 2005			X					X	Hrbek et al. (2005)
Austrofundulus myersi Dahl, 1958	X	X				X			Dahl (1958) | SU 49513, 49513, 68324 | DZVU [ex SU 49513]
Cynodonichthys boehlkei (Huber & Fels, 1985)	X	X				X			Huber and Fels (1985) | ANSP 139467, 139467
Cynodonichthys elegans (Steindachner, 1880)	X	X			-	X	-	-	Steindachner (1880) | NMW 605441, 605442-3, 18893-6
Cynodonichthys leucurus (Fowler, 1944)	X	X					X		Fowler (1944) | ANSP 71436, 71437-50
Cynodonichthys magdalenae (Eigenmann & Henn, 1916)	X	X				X			Henn (1916) | CAS 44227 [ex CM 5814a-m | IU 13603], 52234 [ex IU 13606], 52235 [ex IU 13605], 78377 [ex IU 13606] | FMNH 56997 [ex CM 5813], 56998-99, 57000-02
Cynodonichthys pacificus (Huber, 1992)	X	X					X	X	Huber (1992) | Maldonado-Ocampo et al. (2013b)
Laimosemion altivelis (Huber, 1992)	X	X			X				Huber (1992) | NRM 16548, 14687
Laimosemion corpulentus (Thomerson & Taphorn, 1993)	X	X			X				Thomerson and Taphorn (1993) | SU [not CAS] 69692, 53693
Laimosemion leticia Valdesalici, 2016	X	X		X					Valdesalici (2016)
Rachovia brevis (Regan, 1912)						X		X	Regan (1912d) | Mojica et al. (2006b)
Rachovia hummelincki de Beaufort, 1940						X			Taphorn and Thomerson (1978)
Rachovia maculipinnis (Radda, 1964)					X				Taphorn and Thomerson (1978)
Rivulus azurescens Vermeulen, 2013	X	X				X			Vermeulen (2013)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Rivulus pivijay Vermeulen, 2013	X	X				X			Vermeulen (2013)
Rivulus ribesrubrum Vermeulen, 2013	X	X				X			Vermeulen (2013)
Rivulus xi Vermeulen, 2013	X	X				X			Vermeulen (2013)
Cyprinodontidae 1 sp									
** *Yssolebias martae* (Steindachner, 1876)	X	X						X	Steindachner (1876)
Poeciliidae 17 spp (2 added and 1 deleted from 2008)									
Fluviphylax obscurus Costa, 1996					X				IAvH-P 2171, 2219
Fluviphylax pygmaeus (Myers & Carvalho, 1955)				X	+				Lucinda (2003) | NRM 26248
Gambusia lemaitrei Fowler, 1950	X	X				-		+	Fowler (1950) | ANSP 71938, 71939-40
Neoheterandria elegans Henn, 1916	X	X						X	Henn (1916) | FMNH 57007 [ex CM 5823], 57008 [ex CM 5824a-g] | AMNH 22705sw [ex FMNH 57008], 36481 [ex IU 13612] | CAS 22768 [ex IU 13612] | UMMZ 65232 [ex IU 13612]
Poeciliopsis turrubarensis (Meek, 1912)							X		Rosen and Bailey (1963)
Priapichthys caliensis (Eigenmann & Henn, 1916)	X	X				X	-		Henn (1916) | FMNH 57721 [ex CM 6700a], FMNH [ex CM 6700b]
Priapichthys chocoensis (Henn, 1916)	X	X					X		Henn (1916) | CAS 22547 [ex IU 13618], 22560 [ex IU 13619] | FMNH 57009 | UMMZ 65223 [ex IU 13619]
* *Priapichthys darienensis* (Meek & Hildebrand, 1913)								X	CZUT-IC 11742
Priapichthys nigroventralis (Eigenmann & Henn, 1912)	X	X					X	X	Eigenmann (1912) | Henn (1916)
Pseudopoecilia austrocolumbiana Radda, 1987	X	X					X		Radda (1987) | FMNH 56045 [ex CM 4835], 54046 | BMNH 1924.3.3.85-86 | CAS 22765 [ex IU 12689] | USNM 79205
Pseudopoecilia fria (Eigenmann & Henn, 1914)							X		Maldonado-Ocampo et al. (2013b) | ICN-MHN 2335
Poecilia caucana (Steindachner, 1880)						X		X	Steindachner (1880) | Mojica et al. (2006b)
* *Poecilia gillii* (Kner, 1863)								X	Poeser (2003a)
** *Poecilia koperi* Poeser, 2003								X	Poeser (2003b)
Poecilia mechthildae Meyer, Etzel & Bork, 2002	X	X						X	Meyer et al. (2002) | MTDF 26473-26476 | SMF 28889
Poecilia orri Fowler, 1943								X	Poeser (2003a)
Poecilia sphenops Valenciennes, 1846								X	Agudelo-Zamora et al. (2010)

Taxa	DC	EN	ET	Amz	Ori	Mag-Cau	Pac	Car	References/Collections
Eupercaria *incertae sedis* 7 spp									
Sciaenidae									
Pachypops fourcroi (Lacepède, 1802)				X	+				Casatti (2002) | IAvH-P
Pachypops trifilis (Müller & Troschel, 1849)				X					Bogotá-Gregory and Maldonado-Ocampo (2005)
Pachyurus gabrielensis Casatti, 2001					X				Maldonado-Ocampo et al. (2008)
Pachyurus junki Soares & Casatti, 2000				X					Bogotá-Gregory and Maldonado-Ocampo (2006a)
Pachyurus schomburgkii Günther, 1860				X	X				Mojica et al. (2005) | Galvis et al. (2007a)
Plagioscion magdalenae (Steindachner, 1878)			X			X		X	Steindachner (1878) | Mojica et al. (2006b)
Plagioscion squamosissimus (Heckel, 1840)				X	X				Mojica et al. (2005) | Cala (1977) | Casatti (2005)
Tetraodontiformes									
Tetraodontidae									
Colomesus asellus (Müller & Troschel, 1849)				X					Mojica et al. (2005)
Ceratodontiformes									
Lepidosirenidae									
Lepidosiren paradoxa Fitzinger, 1837			X	X	X				Mojica et al. (2005) | Bogotá-Gregory and Maldonado-Ocampo (2006b)
Total of additions by hydrographic system				11	23	3	3	18	
Total of deletions by hidrographic system				44	32	37	24	19	
Total number of modifications by hidrographic system				55	55	40	27	37	

Final remarks

Confusions and misinterpretations related to the freshwater fishes distributed in Colombian territory and erroneous name assignations were included in previous checklists at local, regional or national levels, as pointed out in previous sections. The exhaustive verification process of the current checklist of the freshwater fishes of Colombia is a step forward linked to the ichthyology collections database depuration process in progress. These efforts will bring new opportunities to insert this information into new analysis dealing with new conservation opportunities or approaches to counteract the drivers of biodiversity decline of the Colombian freshwater fish fauna.

New protected areas or portfolios have been proposed for freshwaters ecosystems in the Orinoco, Magdalena-Cauca and Amazon River basins in the recent years (Lasso et al. 2011b; Téllez et al. 2011; Portocarrero-Aya and Cowx 2016). However, some species level information taken into account to designate those areas were wrong; criteria like species richness or endemic species have to be re-evaluated based on the information

provided in the current checklist. Expert criteria, although important on those analysis and proposals, also have to be reevaluated in light of rigorous data depuration at taxonomic and geographic levels (e.g. Herrera 2015). Applying a decision theory approach to guide and improve the process in the field of conservation planning is important to deal with an incomplete geographic coverage of taxonomic groups (Ornellas et al. 2011), as is the case of the Colombian freshwater fishes.

As it was mentioned in the introduction, new scenarios are in discussion in reference to new approaches dealing with the conservation of the freshwater ecosystems and their biota worldwide (Ormerod 2014). Colombia as a country with one of the richest freshwater fish faunas, faces enormous challenges due to the past and current human impacts that have been affecting the river systems running through the Colombian landscape. Most remarkable is that an important number of species have small distribution ranges in many trans-Andean rivers and piedmont areas of the Orinoco and Amazon regions.

Finally, the data depuration process, conducted mainly at the species level, reinforces the importance of biological collections as repositories of the biodiversity patrimony and allows specimen identifications to be rechecked and verified. More efforts are needed by the institutions in charge of the Colombian ichthyological collections to guarantee the adequate conservation of their specimens. A continuous interinstitutional effort and collection support is an important task to be facilitated by ACICTIOS and the Colombian Biodiversity Information System (SiB Colombia). Those interactions have an enormous impact in terms of the need to maintain a continuous and rigorous updating list process. Moving forward (in addition to field work to fill gaps in poorly sampled basins), we identify as the main tasks remaining: 1) to continue the process of verification of fish species distributions at the sub-basin level or smaller biogeographic areas; and 2) to conduct revisionary taxonomic studies of specific species-rich fish groups found in Colombia. Ideally, these studies have to be developed in the context of an integrative taxonomic approach.

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Supplementary material 1

Checklist of the native freshwater fishes of Colombia

Authors: Carlos DoNascimiento, Edgar Esteban Herrera-Collazos, Guido A. Herrera-R, Armando Ortega-Lara, Francisco A. Villa-Navarro, José Saulo Usma Oviedo, Javier A. Maldonado-Ocampo

Data type: Microsoft Excel Worksheet (.xlsx)

Link: https://doi.org/10.3897/zookeys.708.13897.suppl1

Supplementary material 2

New species described from Colombia after Maldonado-Ocampo et al. (2008)

Authors: Carlos DoNascimiento, Edgar Esteban Herrera-Collazos, Guido A. Herrera-R, Armando Ortega-Lara, Francisco A. Villa-Navarro, José Saulo Usma Oviedo, Javier A. Maldonado-Ocampo

Data type: Microsoft Word Document (.docx)

Link: https://doi.org/10.3897/zookeys.708.13897.suppl2

Supplementary material 3

New records of species for Colombia after Maldonado-Ocampo et al. (2008)

Authors: Carlos DoNascimiento, Edgar Esteban Herrera-Collazos, Guido A. Herrera-R, Armando Ortega-Lara, Francisco A. Villa-Navarro, José Saulo Usma Oviedo, Javier A. Maldonado-Ocampo

Data type: Microsoft Word Document (.docx)

Link: https://doi.org/10.3897/zookeys.708.13897.suppl3

Supplementary material 4

Species listed in Maldonado-Ocampo et al. (2008) with geographic distribution corrected

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Data type: Microsoft Word Document (.docx)

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Supplementary material 5

Species deleted from the Colombian continental ichthyofauna

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DATA PAPER

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The collection of birds from Mozambique at the Instituto de Investigação Científica Tropical of the University of Lisbon (Portugal)

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Abstract

The Instituto de Investigação Científica Tropical of the University of Lisbon, which resulted from the recent merger (in 2015) of the former state laboratory Instituto de Investigação Científica Tropical in the University of Lisbon, holds an important collection of bird skins from the Portuguese-speaking African Countries (Angola, Mozambique, São Tomé and Príncipe, Guinea Bissau and Cape Verde), gathered as a result of several scientific expeditions made during the colonial period. In this paper, the subset from Mozambique is described, which was taxonomically revised and georeferenced. It contains 1585 specimens belonging to 412 taxa, collected between 1932 and 1971, but mainly in 1948 (43% of specimens) and 1955 (30% of specimens). The collection covers all eleven provinces of the country, although areas south of the Zambezi River are better represented than those north of the river. The provinces with the highest number of specimens were Maputo, Sofala, and Gaza. Although it is a relatively small collection with a patchy coverage, it adds significantly to Global Biodiversity Information Facility, with 15% of all records available before and during the collecting period (1830–1971) being the second largest dataset for that period for Mozambique.

Keywords

Animalia, Aves, Biodiversity databases, Chordata, museum, species occurrence data, specimen, southern Africa

Introduction

Mozambique, located along the southeast coast of Africa, has a total land area of 801,590 km^2 encompassing three major biomes: the Afrotropical Highlands biome in the montane areas, the East African Coast biome in the lowlands, and the Zambezian biome represented by *Brachystegia* woodlands (miombo) at mid elevations (Fishpool and Evans 2001). This diversity of habitats supports a rich avifauna (Parker 1999; Ministry for the Coordination of Environmental Affairs 2009), with 671 species recorded, more than 530 of which are breeding residents (BirdLife International 2015). The country holds populations of 29 globally threatened bird species: 4 Critically Endangered, 11 Endangered, and 14 Vulnerable (IUCN 2017).

Despite the fairly high number of bird species recorded, the avifauna of Mozambique is still one of the least studied on the African continent (Borghesio et al. 2009), with several parts of the territory poorly explored, especially north of the Zambezi River (Dowsett-Lemaire 2008; Ryan and Spottiswoode 2003). The protracted Mozambican Civil War (1977–1992) was the main factor resulting in this lack of knowledge, as during that time very few expeditions or scientific studies were carried out (Parker 1999). As a result, a substantial part of current knowledge is still based on studies conducted prior to the war (Clancey 1996), represented mostly by bird skin collections kept at scientific institutions and natural history museums around the world (Frade 1950; Pinto 1953a, 1953b; Frade and Pinto 1954). After the war, there has been a renewed interest, albeit still modest, in the avifauna of Mozambique that has improved the knowledge of species diversity and distributions (e.g.,

Clancey 1996; Parker 1999; Spottiswoode et al 2008; Fishpool and Bayliss 2010). These recent studies have played a fundamental role in guiding national conservation strategies for the avifauna of Mozambique, which have targeted areas dominated by high-priority habitats like the sensitive forests that are home to many threatened species, the coastal zones where many migratory birds spend their non-breeding season, and freshwater habitats that are inhabited by many waterbirds (Borghesio et al. 2009; Moseley et al. 2012).

The present paper describes the dataset of the Mozambican bird skins held in the collection at the Instituto de Investigação Científica Tropical of the University of Lisbon (IICT-ULisboa) in Lisbon. This institution is a specialised unit of the University of Lisbon that resulted from the merging of almost all sections of the Instituto de Investigação Científica Tropical, a former state laboratory, in the University of Lisbon, in July 2015. This new unit shares the director with the National Museum of Natural History and Science of the University of Lisbon, and all the zoological and herbarium collections of IICT are in the process of being moved to the Museum. After the conclusion of relocation process, collections will remain open for the scientific community. The dataset is based on a full taxonomic revision of the bird specimens and georeferenced collection locations, accessed while in the facilities of the former IICT. This is the third in a series of studies based on the IICT-ULisboa collection, with the datasets of Angola (Monteiro et al. 2014) and São Tomé and Príncipe (Monteiro et al. 2016) already summarised. As with the previous datasets, the Mozambican dataset is freely available online on the IICT IPT provider (http://maerua.iict.pt/ipt) and on the Global Biodiversity Information Facility (GBIF) data portal (http://www.gbif.org).

Importance of biological and natural history collections

For more than two centuries, specimens from different taxa have been kept as part of natural history collections in both Natural History museums and herbariums worldwide. One of the goals was to show the outstanding biological diversity, which included very valuable and rare species, to the general public while safeguarding an interest in scientific research (e.g., Pyke and Paul 2010). These biological museums have become large repositories of compiled knowledge and reference material that can be used in several different lines of research in the field of biological sciences (Winker 2004). Currently, the information gathered on the natural collections is considered critical to deal with some biodiversity conservation matters, which includes different topics from ecology, taxonomy, biodiversity loss, biological invasions, agriculture, and public health (Graham et al. 2004).

A foremost contribution of biological collections is linked to the potential of their records being used as historical databases, since the taxonomical and distribution information it contains can cover long periods and relatively large spatial scales (Hromada et

al. 2015). Moreover, when the specimens' records are combined with environmental and historical data, spatial patterns can be depicted and historical distributions can be compared with both present and future projections (e.g., Graham et al. 2004; Lavoie 2013). Each of the above data features is of extreme importance, especially in underdeveloped countries where the research means are scarce and scientific studies are limited. The use of collection records in these regions may be a cost-effective valuable resource, reducing or even eliminating the need for fieldwork in remote areas (Ponder et al. 2001).

In terms of the relevance of the IICT-ULisboa's bird collection, albeit limited, this is a relevant contribution to Mozambique´s ornithology, a poorly studied territory mainly due to the detrimental effects of both the Mozambican war of independence (1964–1974) and its civil war (1977–1992). This collection, though relatively small, represents the second largest set of bird records for the country available through GBIF before and during the collecting period (1830–1971) which represents 15% of all the data for that same time. Some of the records are the first species record for Mozambique and represent the only preserved museum specimens in the entire GBIF´s dataset (1830–2017) (GBIF.org, 2017). This is the case of the Secretary bird (*Sagittarius serpentarius* (Miller JF, 1779)) and the White-headed Vulture (*Trigonoceps occipitalis* (Burchell, 1824)). Furthermore, some data from the least-explored provinces of Niassa, Cabo Delgado, and Nampula, and from many biome-restricted species, are also added to the database.

Despite the critical value of this kind of data, the information available in many collections is still restricted as they are not easily accessible or were not even seen by specialists (Ponder et al. 2001). Therefore, it is highly recommended to facilitate the accessibility to data from as many collections as possible, which would increase the number of sources that can be reached by the scientific community (Suarez and Tsutsui 2004). One of the best ways to increase that availability is through the Internet by the digitization of the records on open access online platforms (Winker 2004). Another relevant issue that requires our attention is the declining support for taxonomic and systematic research by constituencies (e.g., Gropp 2003). This decline has already resulted in large budget cuts in many museums throughout the world, and is putting the use of biological collections at risk (Dalton 2003). As a result, it is vital to contribute to the preservation of biological collections and increase the awareness for a major visibility and access to them.

General description

The IICT-ULisboa holds a collection of 5598 African bird specimens/skins (hereafter "the collection"), mainly from Angola, Cape Verde, Guinea Bissau, Mozambique and São Tomé and Príncipe. The dataset in this paper is a subset of the collection, and contains all specimens from Mozambique, the largest subset for any country represented in the collection (hereafter "the dataset"). The dataset comprises 1585 specimens from 412 taxa, 25 orders and 79 families, which were fully taxonomically revised and georeferenced. Specimens were collected between 1932 and 1971 from 197 different locations, although 73% of all Mozambican specimens were collected in 1948 (43%) and

1955 (30%). Most of these specimens were collected during expeditions of the Missão Zoológica de Moçambique, from south of the Zambezi River, largely because these are the most accessible regions of the country. Of the many collectors, the most significant contributions were made by António da Rosa Pinto and Rui Quadros (118 specimens each) and Mussolini Fajardo (46 specimens). All of them were members of the Museu Álvaro de Castro (now Museu de História Natural, Maputo, Mozambique) and participants on the expeditions of the Missão Zoológica de Moçambique.

Records of a special significance

The collection contains specimens of five of the 29 globally threatened species found in Mozambique (Fishpool and Evans 2001). They all belong to the order Accipitriformes and include two vulnerable species – Martial Eagle (*Polemaetus bellicosus* (Daudin, 1800)), Secretary bird (*Sagittarius serpentarius* (Miller, JF, 1779)) – and three critically endangered species – Hooded Vulture (*Necrosyrtes monachus* (Temminck, 1823)), White-backed Vulture (*Gyps africanus* Salvadori, 1865) and White-headed Vulture (*Trigonoceps occipitalis* (Burchell, 1824)).

The collection holds representatives of five of the 30 biome-restricted species of the Afrotropical Highlands biome found in Mozambique, seven of the 24 species from the East African Coast biome, and 12 of the 26 species of the Zambezian biome (Parker 1999) (Table 1). Several species for which there are few records for the country are represented in the collection, such as Black-rumped Buttonquail (*Turnix nanus* (Sundevall, 1850)), African Blue Flycatcher (*Elminia longicauda* (Swainson, 1838)), Groundscraper Thrush (*Turdus litsitsirupa* (Smith A, 1836)) and Miombo Scrub Robin (*Cercotrichas barbata* (Hartlaub and Finsch, 1870) (e.g., GBIF.org 2017). The collection also includes some of Mozambique´s biome-restricted species of particular interest such as Anchieta's Sunbird (*Anthreptes anchietae* (Barboza du Bocage, 1878)) and Miombo Double-collared Sunbird (*Cinnyris manoensis* Reichenow, 1907) from the Zambezian biome. Both species have considerably restricted distributions in Southern Africa, being relatively uncommon in parts of their range (BirdLife 2016a, b) and the near threatened Neergaard's Sunbird (*Cinnyris neergaardi* Grant CHB, 1908) from the East African Coast biome. This species is mainly restricted to Mozambique and restricted area in South Africa. Its conservation status reflects concerns about the moderately small population, which may be declining owing the clearance of its native forest habitats (BirdLife 2016c).

Taxonomic coverage

The dataset includes specimens from 25 orders and 79 families. Passeriformes are by far the best-represented order (63% of the specimens), followed by Coraciiformes (5.4%) and Charadriiformes (4.9%) (Figure 1). The Cisticolidae, Ploceidae and Nectariniidae are the families with most records (110, 99 and 92 specimens, respectively).

Table 1. Biome-restricted species (Parker 1999) that occur in Mozambique and are represented in the IICT-ULisboa collection. The taxonomic nomenclature follows the International Ornithological Council Bird List v6.1 (Gill and Donsker 2016).

Common Name	Scientific Name	N	IUCN Red List (version 2017)	Biome
Racket-tailed Roller	*Coracias spatulatus* Trimen, 1880	3	Least concern	Zambezian
Mangrove Kingfisher	*Halcyon senegaloides* Smith A, 1834	1	Least concern	East African Coast
Dickinson's Kestrel	*Falco dickinsoni* Sclater PL, 1864	2	Least concern	Zambezian
Brown-headed Parrot	*Poicephalus cryptoxanthus* (Peters W, 1854)	5	Least concern	East African Coast
Pale Batis	*Batis soror* Reichenow, 1903	5	Least concern	East African Coast
Olive Bushshrike	*Chlorophoneus olivaceus* (Shaw, 1809)	2	Least concern	Afrotropical Highlands
White-tailed Crested Flycatcher	*Elminia albonotata* (Sharpe, 1891)	2	Least concern	Afrotropical Highlands
Stripe-cheeked Greenbul	*Arizelocichla milanjensis* (Shelley, 1894)	4	Least concern	Afrotropical Highlands
Black-bellied Starling	*Notopholia corrusca* (Nordmann, 1835)	8	Least concern	East African Coast
Meves's Starling	*Lamprotornis mevesii* (Wahlberg, 1856)	3	Least concern	Zambezian
Miombo Scrub Robin	*Cercotrichas barbata* (Hartlaub & Finsch, 1870)	2	Least concern	Zambezian
Kurrichane Thrush	*Turdus libonyana* (Smith A, 1836)	16	Least concern	Zambezian
White-throated Robin-Chat	*Cossypha humeralis* (Smith A, 1836)	6	Least concern	Zambezian
White-starred Robin	*Pogonocichla stellata* (Vieillot, 1818)	3	Least concern	Afrotropical Highlands
Miombo Rock Thrush	*Monticola angolensis* Sousa, 1888	16	Least concern	Zambezian
Arnott's Chat	*Myrmecocichla arnotti* (Tristram, 1869)	1	Least concern	Zambezian
Anchieta's Sunbird	*Anthreptes anchietae* (Barboza du Bocage, 1878)	1	Least concern	Zambezian
Grey Sunbird	*Cyanomitra veroxii* (Smith A, 1832)	2	Least concern	East African Coast
Miombo Double-collared Sunbird	*Cinnyris manoensis* Reichenow, 1907	3	Least concern	Zambezian
Neergaard's Sunbird	*Cinnyris neergaardi* Grant CHB, 1908	1	Near threatened	East African Coast
White-bellied Sunbird	*Cinnyris talatala* Smith A, 1836	12	Least concern	Zambezian
Red-faced Crimsonwing	*Cryptospiza reichenovii* (Hartlaub, 1874)	1	Least concern	Afrotropical Highlands
Pink-throated Twinspot	*Hypargos margaritatus* (Strickland, 1844)	3	Least concern	East African Coast
Black-eared Seedeater	*Crithagra mennelli* (Chubb EC, 1908)	1	Least concern	Zambezian

Taxonomic ranks

Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Accipitriformes, Anseriformes, Apodiformes, Bucerotiformes, Caprimulgiformes, Charadriiformes, Ciconiiformes, Coliiformes, Columbiformes, Coraciiformes, Cuculiformes, Falconiformes, Galliformes, Gruiformes, Musophagiformes, Otidiformes, Passeriformes, Pelecaniformes, Piciformes, Podicipediformes, Psittaciformes, Pterocliformes, Strigiformes, Suliformes, Trogoniformes
Family: Accipitridae, Acrocephalidae, Alaudidae, Alcedinidae, Anatidae, Anhingidae, Apodidae, Ardeidae, Bucerotidae, Burhinidae, Campephagidae, Caprimulgidae, Certhiidae, Charadriidae, Ciconiidae, Cisticolidae, Coliidae, Columbidae, Coraciidae, Corvidae, Cuculidae, Dicruridae, Emberizidae, Estrildidae, Eurylaimidae, Falconidae, Fringillidae, Glareolidae, Hirundinidae, Hyliotidae, Indicatoridae, Jacanidae, Laniidae, Laridae, Locustellidae, Lybiidae, Macrosphenidae, Malaconotidae, Meropidae, Monarchidae, Motacillidae, Muscicapidae, Musophagidae, Nectariniidae, Nicatoridae, Numididae, Oriolidae, Otididae, Paridae, Passeridae, Pelecanidae, Phalacrocoracidae, Phasianidae, Phoeniculidae, Platysteiridae, Ploceidae, Podicipedidae, Psittacidae, Pteroclidae, Pycnonotidae, Rallidae, Remizidae, Sagittariidae, Scolopacidae, Scopidae, Stenostiridae, Strigidae, Sturnidae, Sylviidae, Threskiornithidae, Timaliidae, Trogonidae, Turdidae, Turnicidae, Tytonidae, Upupidae, Vangidae, Viduidae, Zosteropidae
Common names: Birds

Spatial and temporal coverage

General spatial coverage: The collection covers all eleven provinces of Mozambique, although the distribution of the records is uneven between them (Figure 2). From fewest to most specimens, the provinces are represented as follows: Cabo Delgado (2), Niassa (5), Nampula (5), Tete (18), Zambésia (24), Inhambane (35), Manica (39), Gaza (247), Sofala (353), and Maputo (841). The name "Maputo" refers both to Maputo and Maputo City provinces. There are 12 specimens collected from a locality that we were unable to geo-reference, and six specimens with no locality given.

Coordinates: Mozambique (10°S and 27°S Latitude; 30°E and 41°E Longitude)

Temporal coverage: The temporal range of the records is between 1932 and 1971 (Figure 3). Two main peak periods are 1948 and 1955, which together represent 73% of the collected specimens and correspond to the dates of the Missão Zoológica de Moçambique´s expeditions.

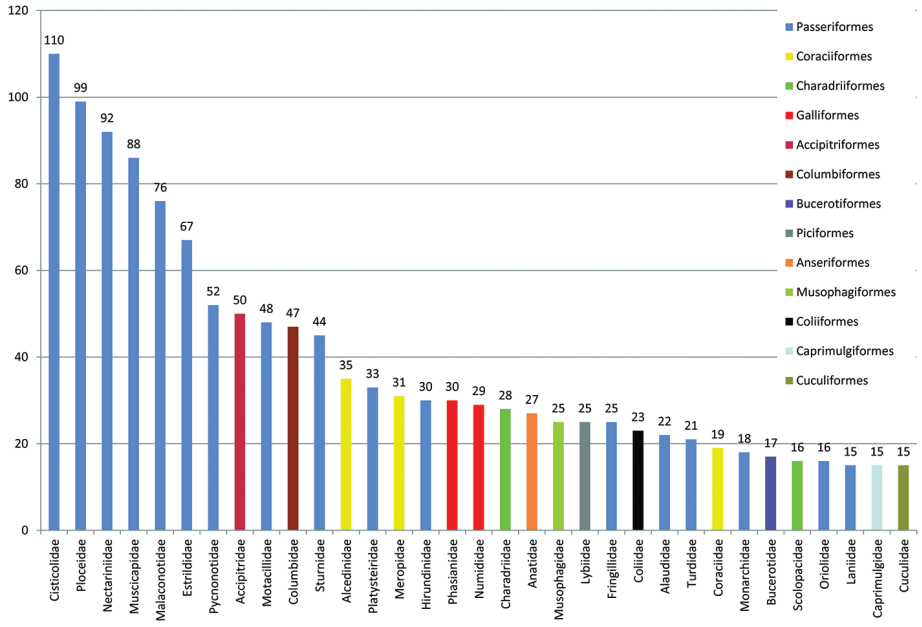

Figure 1. Total number of bird specimens from Mozambique, per family, held in the zoological collections of IICT-ULisboa (Lisbon). The legend lists the corresponding Orders, with assigned colours. Only the categories of families having 15 or more specimens are labelled.

Methods

Method step description: During the ARCA project (2008–2010), the mammal and bird collections of the IICT were initially catalogued with the use of the software Specify Workbench, and later all that information was imported to Specify version 6 (Specify Software Project 2013). At that time, there were no taxonomic experts available to check the collections, and so the imported data were directly copied out from the labels without making any corrections or taxonomic updates. In 2015–2016, the collection was revised by the first author, following the procedures of the previous works on the collection (Monteiro et al. 2014, Monteiro et al. 2016).

A revision of the database was made in 2015–2016 based on the IOC Bird List v6.1 (Gill and Donsker 2014), and all the original information of each bird specimen (collector, date of collection, collection locality, and descriptions of bare parts) was double-checked to avoid transcription errors. As georeferenced location information was not available on specimen labels or associated book manuals, specimens were georeferenced according to the guidelines of Chapman and Wieczorek (2006). The geographical gazetteer Geolocate was primarily used to determine location coordinates for collection localities, with further data gleaned from sources such as Google Maps,

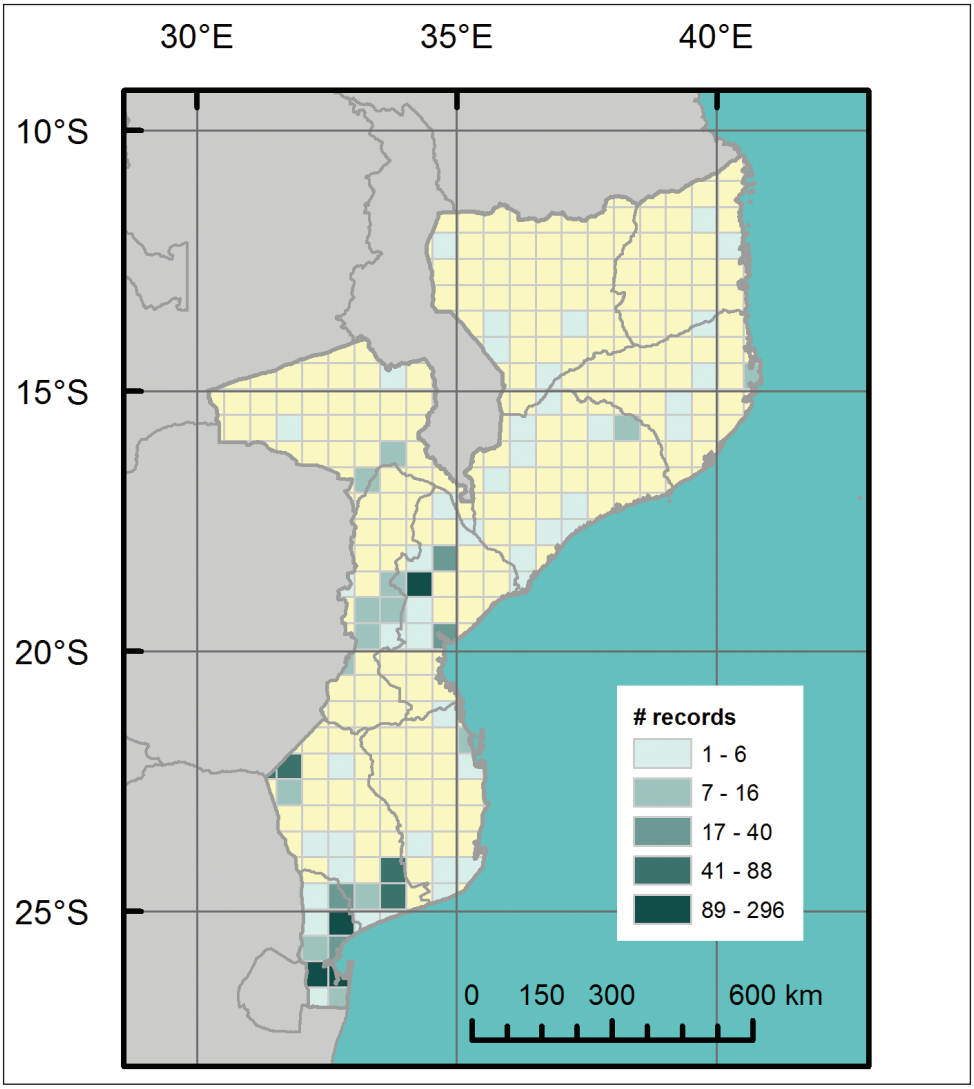

Figure 2. Distribution map of the locations of specimens' occurrence throughout the territory of Mozambique held in the zoological collections of IICT-ULisboa (Lisbon).

IICT´s botanical geodata, and a series of 1:250000 maps for Mozambique. Geographical coordinates are given in decimal degrees, based on datum WGS 84. For ten records it was not possible to determine coordinates due to incomplete information.

Study extent description: The study covers all eleven provinces of Mozambique, although the southern (1123 records) and central provinces (410 records) of the country are much better represented than the northern provinces (36 records). The provinces of Maputo, Sofala, and Gaza are the best-represented.

Sampling description: All records in the database come from scientific visits carried out between 1932 and 1971. The most significant contributions were made

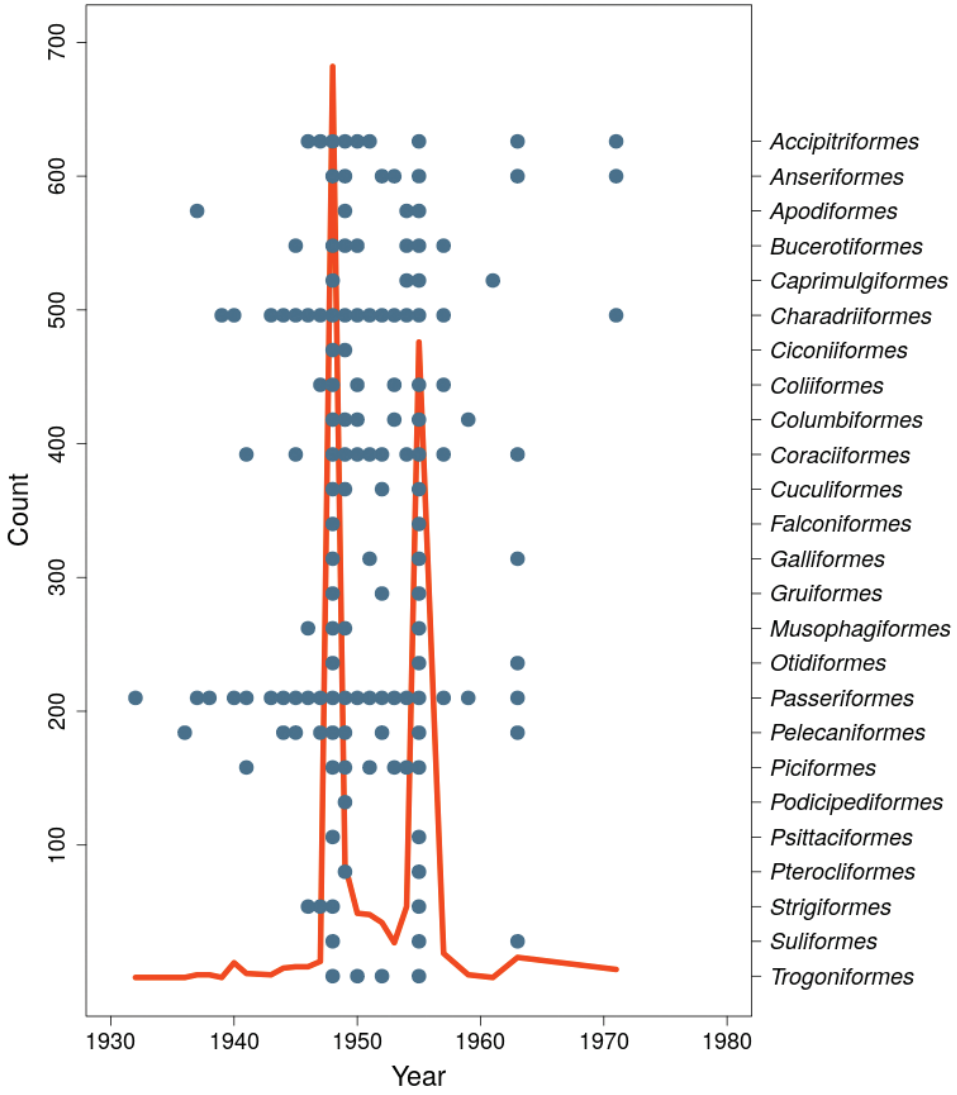

Figure 3. Temporal profile of the sampling leading to bird skin collection held at the zoological collections of IICT-ULisboa (Lisbon). Blue dots represent sampling years for each Order.

in 1948 and 1955, during expeditions of the Missão Zoológica de Moçambique. In 1948, Fernando Frade (director of the Center of Zoology of the Junta das Missões Geográficas e Investigações Coloniais) coordinated the first and major expedition of the zoological mission with the collaboration of the Museu Doutor Álvaro de Castro and the Centro de Investigação Científica Algodoeira that were both based on Mozambique. The aim of the six-month mission (June to November) was to evaluate the state of the country´s fauna. Two scientific teams (Brigada Entomológica and Brigada do Chefe da Missão) bringing together many different specialists surveyed the Mo-

zambican territory along 12 different itineraries. In terms of ornithological results, 718 bird specimens were collected, although only 677 specimens are currently present in the collection. All bird data was published later in 1951 in two different publications of the same institution titled "Trabalhos da Missão Zoológica de Moçambique: Aves coligidas na Missão Zoologica de Moçambique" (Frade 1951) and "Trabalhos da Missão Zoológica de Moçambique: Catálogo das aves de Moçambique" (Frade and Bacelar 1951). In 1955, António Augusto da Rosa Pinto, another member of the Zoological Mission of Mozambique and the director of the Museum Doutor Álvaro de Castro, did some minor expeditions through the south region of Mozambique and Gorongosa to study the avian diversity and collect some bird specimens. The work led to a publication on the birds of Gorongosa (Pinto 1961).

Quality control description: The initial digitalized information that was directly transcribed from the specimen's labels to Specify 6 was fully revised by Miguel Monteiro. This included a taxonomic revision following the IOC Bird List version 6.1 (Gill and Donsker 2016). Additionally, all the collection localities were georeferenced using the recommended processes of Chapman and Wieczorek (2006), which included the uncertainty determination of the coordinates when no substantial information was available.

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