

On the erroneous records of *Oligosarcus hepsetus* (Cuvier, 1829) from Argentina and Uruguay.

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Introduction

For more than 150 years *Oligosarcus hepsetus* (Cuvier, 1829) has been considered to be distributed in the freshwaters of Argentina and Uruguay. An analysis of literature accounts revealed that the records of this species from these countries were erroneous due to misidentifications with either *Oligosarcus oligolepis* (Steindachner, 1867) or *O. jenynsii* (Guenther, 1864).

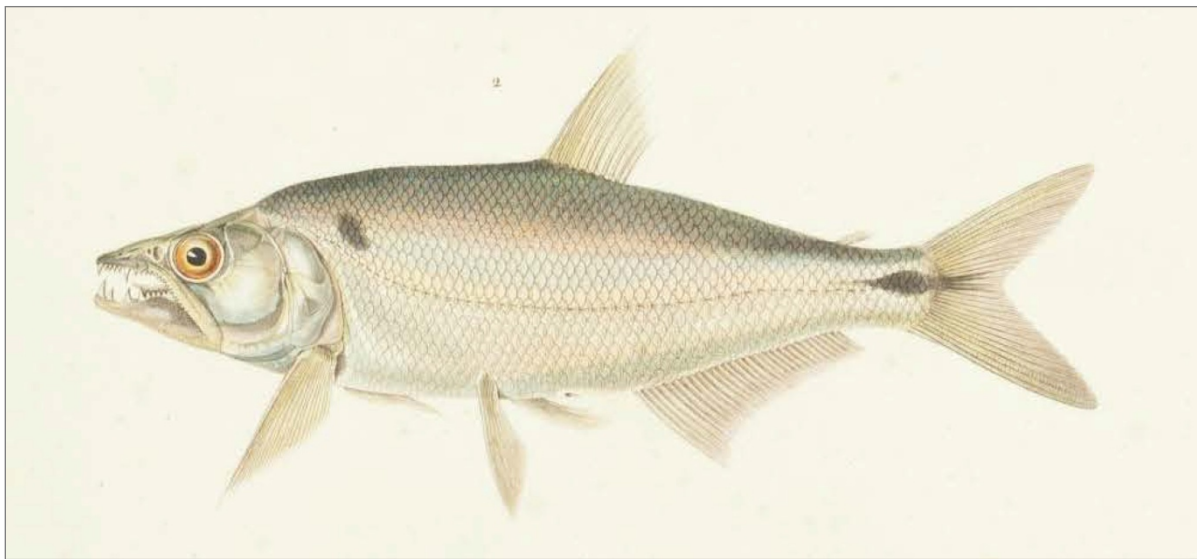


fig. 1. The “Hydrocyn faucille” from plate 48, figure 2 of Quoy & Gaimard (1824)

Accounts in literature

- Quoy & Gaimard (1824) *Hydrocyon falcatus* “proviennent du Brésil” (p. 222). In the index (p. 689) with statement “provient de la baie de Rio de Janeiro”. In the index to figure 2 of plate 48 as “Hydrocyn faucille du Brésil”. (fig. 1)
- Cuvier (1829) *Hydrocyon hepsetus* sp.nov. in footnote, based on Quoy & Gaimard’s figure of *Hydrocyon falcatus* (pl. 48, f. 2). No statement on type locality.
- Jenyns (1842) *Hydrocyon hepsetus* from Maldonado, Uruguay with statement that different from the *H. falcatus* of Quoy & Gaimard. First record of *Oligosarcus jenynsii* from Uruguay [see below in Guenther 1864.]
- Valenciennes (1847) *Hydrocyon hepsetus* from a collection made by d’Orbigny in ‘l’Amerique meridionale’ (title of paper) without indicating details on a locality (fig 2.). Menezes (1987) assigned this finding to *O. oligolepis* and added ‘Buenos

Aires' to Valenciennes' report without providing a source for this information. If that addition of Menezes was correct, this is the first record of *Oligosarcus oligolepis* from Argentina.

- Cuvier & Valenciennes (1849) *Xiphorhynchus hepsetus* with references on numerous specimens collected by Quoy & Gaimard in Rio de Janeiro.
- Guenther (1864) *Xiphorhamphus hepsetus* with Rio de Janeiro as type locality. *Xiphorhamphus jenynsii* sp.nov. based on Jenyns' record of *Hydrocyon hepsetus* from Uruguay. No mention of type specimen/s. Although Guenther published this new species in a catalog of the BMNH collection, the types seem to be missing in UMZC [Fricke et al. 2020].
- Steindachner (1867) *Xiphorhamphus oligolepis* sp.nov. from Río de la Plata [Montevideo]. First record of *Oligosarcus oligolepis* from Uruguay
- Steindachner (1870) Re-description of *Xiphorhamphus oligolepis* from Montevideo.
- Steindachner (1877) *Xiphorhamphus hepsetus* from Southeastern Brazil, treating *X. jenynsii* as a jr. synonym.
- Guenther (1880) *Xiphorhamphus jenynsii* from 'Río de la Plata'. Despite the fact that 16 years earlier Guenther himself described *Oligosarcus jenynsii* and thus, was supposed to know 'his' species, Menezes (1987) assigned this finding to *O. oligolepis*. All specimens of *Oligosarcus* from Argentina and inventoried in the BMNH collection before 1881 have been collected at 'La Plata, Buenos Aires' (result from online database of BMNH).
- Steindachner (1891) *Xiphorhamphus jenynsii* and *X. hepsetus* both treated as valid (fig. 3) from numerous specimens from Arroyo Miguelete [Montevideo]. Menezes (1987) confirmed the identity of *O. jenynsii*, but assigned this record of *Xiphorhamphus hepsetus* to *O. oligolepis*. It seems somehow odd that Steindachner did not recognize *Oligosarcus oligolepis*, a species described by himself in 1867.
- Holmberg (1893) *Xiphorhamphus jenynsii* from streams and rivers of the province of Buenos Aires. Identity confirmed by Menezes (1987). First record of *Oligosarcus jenynsii* from Argentina.
- Devincenzi (1924) *Acestrorhynchus hepsetus* from Arroyo Miguelete [Montevideo], Uruguay. Menezes (1987) assigned this finding to *Oligosarcus oligolepis*.
- Pozzi (1945) *Acestrorhynchus hepsetus*, *A. jenynsi*, and *A. oligolepis* as valid and from Argentina. No statements on distributions or type localities.

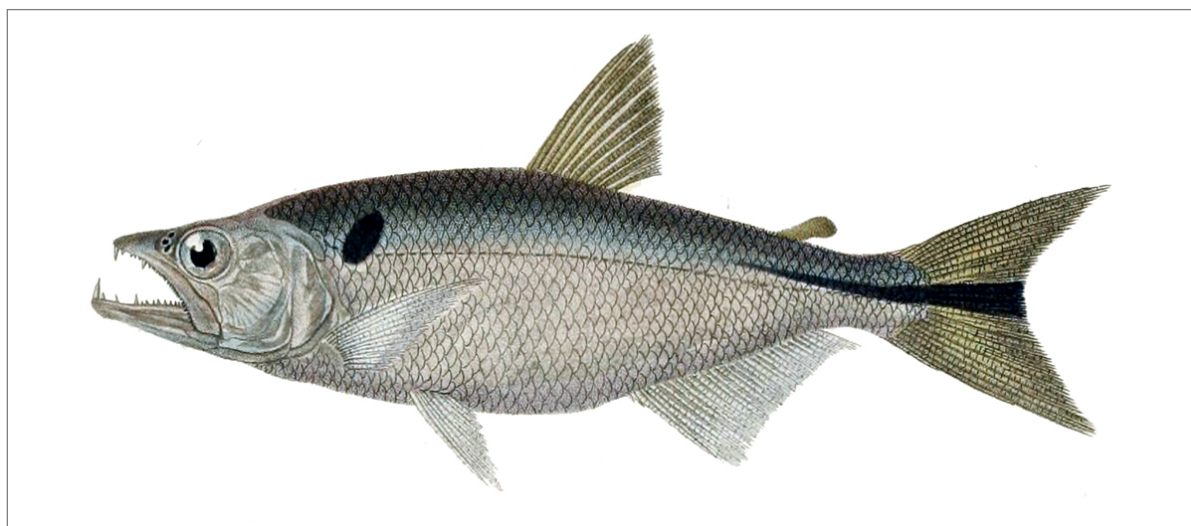


fig. 2. "Hydrocyon hepsetus", drawing by Paul Louis Oudart from Valenciennes (1847)

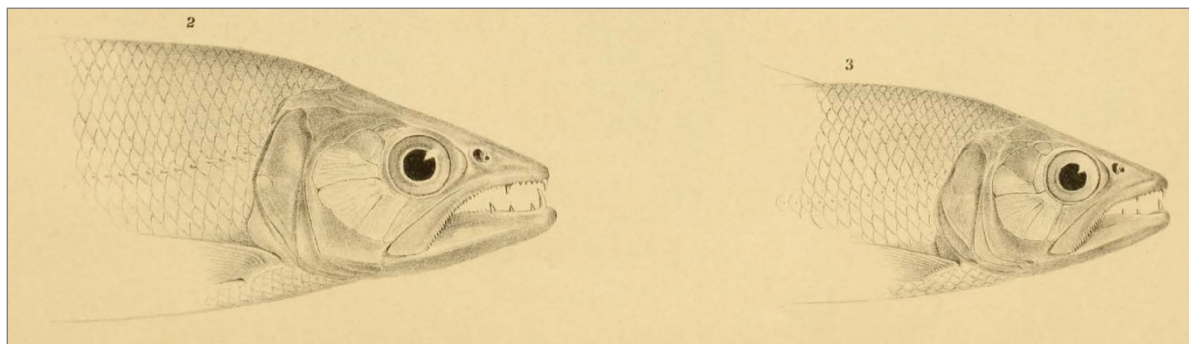


fig. 3. Plate 1 from Steindachner (1881): *Xiphorhamphus hepsetus* C. V. (left) and *X. jenynsii* Gthr., both from Arroyo Miguelete in Montevideo, Uruguay.

- Bertin (1948) *Acestorhamphus hepsetus* with authorship of Valenciennes (1847) and thus, as syntypes the specimens collected by d'Orbigny in Buenos Aires.
- Ringuelet & Arámburu (1961) *Acestorhamphus hepsetus* and *A. jenynsii* as valid and from from Argentina. No statements on distributions or type localities.
- Ringuelet et al. (1967) *Acestorhamphus hepsetus*, *A. jenynsii*, and *A. oligolepis* as valid and from Argentina.
- Menezes (1969) *Oligosarcus hepsetus* with *Xiphorhamphus oligolepis* as a jr. synonym, type locality as 'probably in Río de Janeiro', and distribution in rivers of Eastern and Southeast Brazil, from Espírito Santo to Rio Grande do Sul, Uruguay and Paraná river basins including the rios Paraná, Paraguay and Uruguay.
O. jenynsi with distribution in rivers of Eastern and Southeast Brazil from Bahia to Rio Grande do Sul, Uruguay and Argentina.
- Carrera (1976) *Oligosarcus hepsetus*, *O. jenynsi*, and *O. oligolepis* as valid species from Uruguay. No statements on distributions or type localities.
- López et al. (1987) *Oligosarcus jenynsi* and *O. hepsetus*, with *O. oligolepis* as a jr. synonym, as valid and from Argentina. No statements on distributions or type localities.
- Menezes (1987) *Oligosarcus hepsetus* with type locality Rio de Janeiro and distribution in lakes and rivers of the coastal region of Southeastern Brazil between Santa Catarina and Rio de Janeiro.
O. jenynsi with distribution in streams, rivers, and lakes in the coastal area and inland floodplains of Rio Grande do Sul, Uruguay and Argentina.
O. oligolepis, resurrected from synonymy, with distribution in rivers Paraguay, Lower Paraná, Uruguay and La Plata, and their affluents in the lower portions.
- Braga (1994) *Oligosarcus jenynsi* and *O. oligolepis* as valid and from Argentina. Statement that the latter repeatedly has been cited sub *O. hepsetus* from the La Plata drainage.
- Eschmeyer (1998) *Oligosarcus hepsetus* only with explicit reference to the 'non types' from Buenos Aires, but without mentioning the correct type locality in Rio de Janeiro or the possibility that Quoy & Gaimard's original type specimen/s might have to be considered lost.
- Nion et al. (2002) *Oligosarcus hepsetus* and *O. jenynsi* as valid and from Uruguay. No statements on distributions or type localities.
- López et al. (2003) *Oligosarcus jenynsii* and *O. oligolepis* as valid and from Argentina.
- Menezes (2003) *Oligosarcus hepsetus* with type locality as unknown and distribution in Southeastern Brazil and La Plata River basin.

- Lima et al. (2007) *Oligosarcus hepsetus* with type locality as unknown and distribution in rivers and streams of Southeastern Brazil.
- Litz & Koerber (2014) *Oligosarcus hepsetus*, *O. jenynsii*, and *O. oligolepis* as valid and from Uruguay. No statement on distribution or type locality of *O. hepsetus*.
- Mirande & Koerber (2015) *Oligosarcus hepsetus*, *O. jenynsii*, and *O. oligolepis* as valid and from Argentina. Buenos Aires as type locality of *O. hepsetus*.
- Ribeiro & Menezes (2015) Localities of examined specimens in maps for *Oligosarcus hepsetus* [coastal basins between São Paulo and Tubarão], *O. jenynsii* [lower Paraná, Uruguay and Patos/Merim basins], and *O. oligolepis* [Uruguay basin].
- Nion et al. (2016) *Oligosarcus hepsetus* and *O. jenynsi* as valid and from Uruguay. No statements on distributions or type localities.
- Wendt et al. (2019) Localities of examined specimens of *Oligosarcus hepsetus* in map show an approximate distribution in the coastal basins between Campos and Florianopolis (fig. 4).
- Fricke et al. (2020) *Oligosarcus hepsetus* only with explicit reference to the 'non types' from Buenos Aires, but without mentioning the correct type locality in Rio de Janeiro or the possibility that Quoy & Gaimard's original type specimen/s might have to be considered lost.

Discussion

It is concluded that *Oligosarcus hepsetus* (Cuvier, 1829) has its type locality in 'Rio de Janeiro' and is distributed in the small coastal basins along the Brazilian coast between the state of Rio de Janeiro and the Laguna dos Patos basin (Menezes 1987, Ribeiro & Menezes 2015, Wendt et al. 2019).

All records of this species from Argentina and Uruguay are considered erroneous, mostly based on misidentifications with *O. oligolepis* (Steindachner, 1867). It is recommended not to treat *Oligosarcus hepsetus* as a valid species from Argentina or Uruguay until future findings would confirm the contrary.

Only Braga (1994) mentioned explicitly that the name *Oligosarcus hepsetus*, or with other generic combinations, was repeatedly used for findings of *O. oligolepis* in the La Plata basin. The reasons for these erroneous assumptions over time have probably been several actions and statements, or a combination of those, which influenced later authors:

1. *Oligosarcus hepsetus* has been treated as a sr. synonym of both, *O. jenynsii* (by Steindachner 1877) and *O. oligolepis* (by Menezes 1969).
2. Despite the fact that Quoy & Gaimard informed about its provenance from the bay of Rio de Janeiro, the type locality of *Oligosarcus hepsetus* has been indicated as 'Buenos Aires' (by Bertin 1948), doubtfully mentioned as 'probably Rio de Janeiro' (by Menezes 1969), or more recently even been stated as unknown (by Menezes 2003, Lima et al. 2007). This inconsistency has probably alienated authors less specialized in this genus.
3. Eschmeyer's Catalog of Fishes, the most important source of data for all ichthyological questions regarding synonymies, type specimens, type localities &c., from the printed version (Eschmeyer 1998) to the last update of the online database (Fricke et al. 2020) in this case is not providing the complete information regarding *Oligosarcus hepsetus* as having been collected in Rio de Janeiro, but somehow misleading, yet correct, data on non-types from Buenos Aires.

Anyhow, including *Oligosarcus hepsetus* in the species list for Argentina and Uruguay (Litz & Koerber 2014, Mirande & Koerber 2015) was a fault of the respective authors. The negligence not to do a proper study of literature as in the present note is not to be blamed on others.

Cuvier (1829) based his new taxon *Hydrocyon hepsetus* on the drawing of Quoy & Gaimard's figure of *Hydrocyon falcatus* (fig. 1). Quoy & Gaimard stated that "Les individus que nous avons déposés dans les galeries du Muséum..." and thus, confirmed that their specimens of '*Hydrocyon falcatus*' have reached the museum in Paris. However, in his catalog of type specimens of fishes in the Natural History Museum in Paris, Bertin (1948) does not provide information on the specimen shown in this figure, nor does the online database of MNHN in Paris (2019) contain hints on existing specimens collected during this expedition in Rio de Janeiro. For the time being the specimens deposited by Quoy & Gaimard may be considered lost.

This conclusion leads to the next step, that if in the future an investigator may see the necessity to designate a neotype for *Hydrocyon hepsetus* Cuvier, 1829, it shall be selected from specimens obtained in the original area. Following article 75.3.6. of the currently valid version of The Code (ICZN 2020) this future investigator would need to provide “evidence that the neotype came as nearly as practicable from the original type locality”.

As shown by Koerber & Reis (2020) for the freshwater fishes collected by Quoy & Gaimard in the area of Rio de Janeiro, the potential neotype locality would certainly need to be an affluent to the bay of Guanabara and, in more detail, could be either of these two:

- Rio Macacu at the village of Japuiba, state of Rio de Janeiro, 22°33'39"S 42°41'38"W, or
- Rio Inhomirim at the hamlet of Raiz da Serra, village of Inhomirim, city of Magé, state of Rio de Janeiro, 22°34'34"S 43°11'05"W

These are the only identified localities where Quoy & Gaimard have been collecting freshwater fishes in the area of Rio de Janeiro and a potential future neotype should be selected among specimens from either of these two localities.

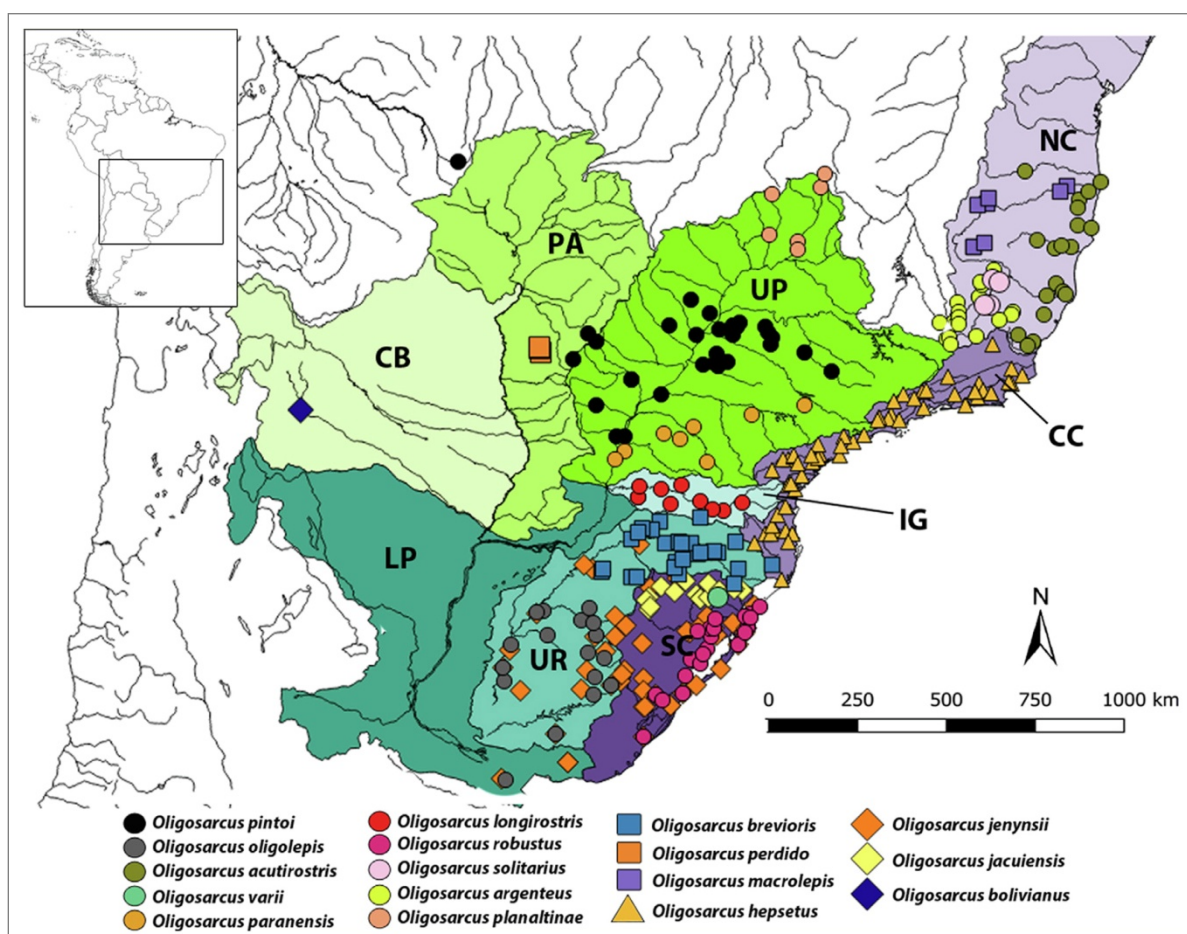


fig. 4. from Wendt et al. (2019): Map illustrating the nine geographic areas used in the biogeographical analysis and distribution of *Oligosarcus* species included in the phylogenetic analyses. Basins: CB = Chaco, CC = Central Coastal, IG = Iguazú, LP = Lower Paraná, NC = Northern Coastal, PA = Paraguay, SC = Southern Coastal, UP = Upper Paraná, UR = Uruguay *Oligosarcus amome*, *O. itau*, and *O. platensis* have not been included in this analysis.

Acknowledgements

Thanks are due to Emília Wendt, Brazil, who has generously permitted to reproduce the map (fig. 4) from Wendt et al. (2019), and to Jean Huber, France, for providing scans of the respective pages from Bertin’s catalog.

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Koerber, S. & W.S. Serra (2020):

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