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## ***Raja cyanoplax* NOM.NOV., A REPLACEMENT NAME FOR *Raja magellanica* STEINDACHNER, 1903, JUNIOR HOMONYM OF *Raja magellanica* PHILIPPI, 1902 (CHONDRICHTHYES: ARHYNCHOBATIDAE)**

*Raja cyanoplax* nom. nov., un nombre de reemplazo para *Raja magellanica* Steindachner, 1903, homónimo menor de *Raja magellanica* Philippi, 1902 (Chondrichthyes: Arhynchobatidae)

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**Abstract.** The homonymy between *Raja magellanica* Philippi, 1902 and *Raja magellanica* Steindachner, 1903 is removed by the introduction of a replacement name for the younger name. The discovery of a so far missing syntype in Berlin is presented, together with comments on the provenance of another syntype hosted in Vienna.

**Keywords.** Homonymy, *Bathyraja*, Straits of Magellan, SE Pacific, SW Atlantic

**Resumen.** La homonimia entre *Raja magellanica* Philippi, 1902 y *Raja magellanica* Steindachner, 1903 se elimina mediante la introducción de un nombre de reemplazo para el nombre más joven. Se presenta el descubrimiento de un sintipo desaparecido en Berlín, junto con comentarios sobre la procedencia de otro sintipo alojado en Viena.

**Palabras clave.** Homonimia, *Bathyraja*, Estrecho de Magallanes, Pacífico Sudeste, Atlántico Sudoeste.

## INTRODUCTION

Almost simultaneously Philippi (1902) and Steindachner (1903) both described a new species of ray with the same name: *Raja magellanica*. Just as the species name implies both did so based on specimens collected in the Strait of Magellan, between the southern tip of continental South America and the island of Tierra del Fuego. It is remarkable that two homonymous specific names have been used for new species not only at nearly the same time, but also based on type material from the same eponymous area.

These parallelisms may have been the reason why the two species have never been discriminated. To the best of our current knowledge no comparison of the two descriptions has ever been published and in the collection in Vienna there is no indication on file that the syntype hosted at NMW has ever been examined.

For over a century *Raja magellanica* has been treated as a single species, despite variations in authorship. Without considering global species lists or systematic catalogs, we have analyzed papers on the marine ichthyofaunas of Argentina and Chile,

as well as some dealing with the systematics of *Bathyraja*, resulting in a comparably frequent assignment of authorship to either Philippi or Steindachner. The only slight tendency of preference which can be recognized is that, apart from Mann (1954:85), all authors from Chile have opted for Philippi as author of *Raja magellanica*. But rather a result of analysis, this is likely an artifact caused by the facts that Philippi published based on voucher specimens from a collection in Chile and in a Chilean journal. Papers published in Argentina are found in both columns.

Norman (1937) confirmed that the specimens examined by him agreed „closely with Steindachner’s original description“. He placed Philippi’s name as a questionable synonym under Steindachner’s taxon, but did not include Philippi’s work in his “Bibliography. List of the principal memoirs and papers dealing with the marine fishes of the Patagonian region from 1771 to 1934”, without indication if he either did not know it or did not consider Philippi’s a ‘principal paper’.

The original combination with the generic name *Raja* stood for half a century until

**Table 1** - Examples for the random assignment of authorship for *Raja magellanica* to either Philippi or Steindachner during more than a century

Philippi, 1902	Steindachner, 1903
<ul style="list-style-type: none"> <li>• Quijada (1913)</li> <li>• Fowler (1951)</li> <li>• Mann (1954:113)</li> <li>• Pequeño and Lamilla (1985)</li> <li>• Pequeño (1989)</li> <li>• Lloris and Rucabado (1991)</li> <li>• McEachran and Dunn (1998)</li> <li>• Lamilla and Pequeño (1999)</li> <li>• Cousseau et al. (2000)</li> <li>• Lamilla and Bustamante (2005)</li> <li>• Cousseau et al. (2007)</li> <li>• Scenna and Díaz de Astarloa (2014)</li> <li>• Barbini and Cousseau (2015)</li> <li>• Mabrugaña and Cousseau (2021)</li> <li>• Ebert et al. (2022)</li> </ul>	<ul style="list-style-type: none"> <li>• Regan (1913)</li> <li>• Thompson (1916)</li> <li>• Pozzi and Bordalé (1935)</li> <li>• Norman (1937)</li> <li>• Mann (1954:85)</li> <li>• Ringuelet and Arámburu (1960)</li> <li>• Krefft (1968)</li> <li>• Menni (1972)</li> <li>• Stehmann (1978)</li> <li>• Menni et al. (1984)</li> <li>• Stehmann (1986)</li> <li>• López et al (1996)</li> <li>• Menni and Stehmann (2000)</li> <li>• Menni and Lucifora (2007)</li> <li>• Cousseau and Rosso (2019)</li> </ul>

for a short period the species was placed in *Breviraja* (e.g. Krefft 1968; Menni 1972). Stehmann (1978) proposed a new combination with *Bathyraja*, which was later substantiated in his work on the systematics of this genus (1986). Subsequent authors have followed Stehmann and independently from the assigned author, Philippi or Steindachner, placed the species in *Bathyraja*, family Arhynchobatidae.

**Abbreviations.** ICZN, International Code of Zoological Nomenclature [see references]; INIDEP, Instituto Nacional de Investigación y Desarrollo Pesquero, Mar del Plata, Argentina; MNHNC, Museo Nacional de Historia Natural de Chile, Santiago de Chile; NMW, Naturhistorisches Museum Wien, Vienna, Austria; ZMB, Zoologisches Museum Berlin, Germany.

### Type specimens of *Raja magellanica* Philippi, 1902

Philippi (1902) based the description of his *Raja magellanica* on three specimens, then in the possession of ‘the museum’ [MNHNC]. From these three specimens, one female and two males collected in the Strait of Magellan, he provided descriptive details only for the biggest male specimen. Nevertheless, he did not express a further preference for any of the three, he especially he did not use the word ‘type’ or a similar expression, nor did he explicitly exclude a specimen from consideration. Therefore, the three specimens compose a type series of equal status and must be treated as syntypes (ICZN 72.1.1).

Pequeño and Lamilla (1985) quoted that they identified an embalmed specimen at MNHNC as the ‘holotype’ of Philippi’s type series. This specimen did not bear a collection number and no label provided information on provenance or a possible

type status. The authors based their assumption on the facts that a) Philippi stated that his three specimens were all embalmed [dry mounted, stuffed?], b) that the discovered specimen was evidently old enough to thought-provoking Philippi could have seen it, and c) that some measures match with Philippi’s description. All together good enough for an educated guess, yet only a guess.

Independently from the fact that Pequeño and Lamilla (1985) could not provide an unequivocal evidence that the specimen found in MNHNC is part of the type series, their action has no nomenclatorial value for being explicitly excluded by the ICZN (74.5): “When the original work reveals that the taxon had been based on more than one specimen, a subsequent use of the term “holotype” does not constitute a valid lectotype designation unless the author, when wrongly using that term, explicitly indicated that he or she was selecting from the type series that particular specimen to serve as the name-bearing type.” As they only assumed to have found a single potential specimen of the original type series, a selection of a particular specimen from several syntypes was impossible in that moment.

Thus, even if in the future it could be proven that this specimen is from the original type series, while the other two remain lost, it should be treated as the last existing syntype.

In addition to the presumed ‘holotype’, Pequeño and Lamilla (1985) have examined four non-type specimens deposited in collection lot MNHNC 770029. In 1993 Meléndez et al. published a catalog of not only the types of the fish collection at MNHNC, but a list of the entire ichthyological collection. Surprisingly, neither the species *Raja magellanica*, nor the lot 770029, mentioned only eight years earlier, have been included in this collection catalog.

## Type specimens of *Raja magellanica* Steindachner, 1903

Steindachner described his *Raja magellanica* based on the examination of two

specimens, a female and a male, collected at Punta Arenas in the Strait of Magellan, Chile. Just as Philippi he did not use a term as 'type', nor did he exclude either specimen from consideration. Thus, both



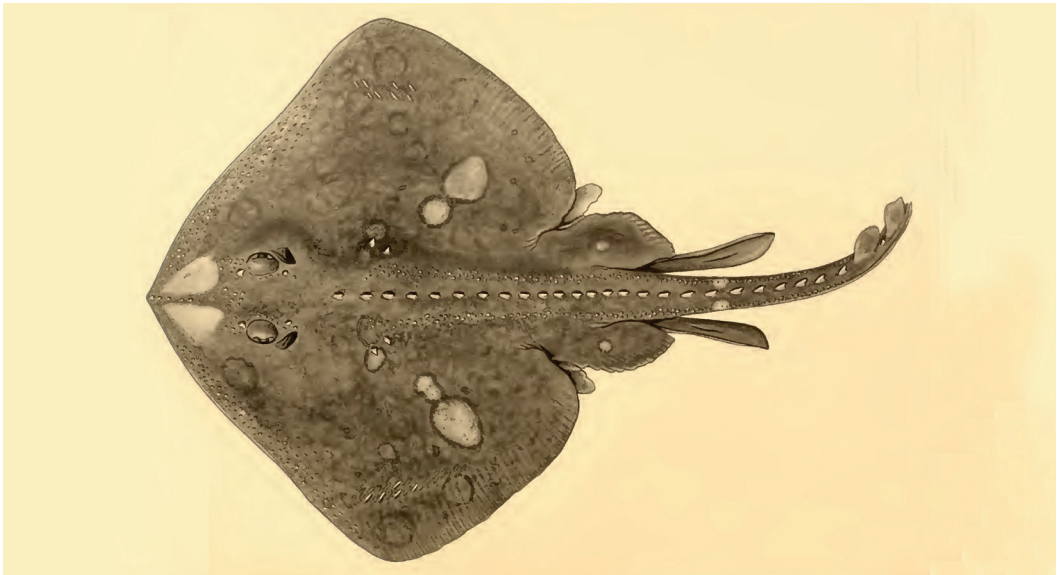
**Figure 1** - *Raja magellanica* Steindachner, 1903. NMW 2070, syntype 2, male, approx. 60 cm.

**Table 2** - Species described by Steindachner in 1898 and 1903 based on specimens collected by Ludwig Plate along the Pacific coast of southern South America and in the Strait of Magellan. Sorted by numbers of collection lots. All data from Fricke et al. (2022), except ZMB 16287.

		Steindachner 1898	Steindachner 1903		
<i>Raja magellanica</i>	syntype 2 ♂		NMW 2070	homonym of	<i>Bathyraja magellanica</i> (Philippi, 1902)
<i>Raja chilensis</i>	syntypes	ZMB 15611		synonym of	<i>Sympterygia lima</i> (Poeppig, 1835)
<i>Callanthias platei</i>	lectotype	ZMB 15624		valid as	<i>Callanthias platei</i> Steindachner, 1898
<i>Callanthias platei</i>	paralectotypes	ex ZMB 15624		valid as	<i>Callanthias platei</i> Steindachner, 1898
<i>Girella albostrata</i>	syntypes	ZMB 15627		valid as	<i>Girella albostrata</i> Steindachner, 1898
<i>Chilodactylus bicornis</i>	syntypes	ZMB 15630		valid as	<i>Chironemus bicornis</i> (Steindachner, 1898)
<i>Sebastodes chilensis</i>	syntypes	ZMB 15632		synonym of	<i>Sebastes capensis</i> (Gmelin, 1789)
<i>Notothenia modesta</i>	holotype	ZMB 15646		synonym of	<i>Patagonotothen cornucola</i> (Richardson, 1844)
<i>Salaris eques</i>	holotype	ZMB 15658		synonym of	<i>Scartichthys gigas</i> (Steindachner, 1876)
<i>Chirostoma affine</i>	holotype	ZMB 15674		synonym of	<i>Odontesthes regia</i> (Humboldt, 1821)
<i>Chirostoma gracile</i>	syntypes	ZMB 15675		valid as	<i>Odontesthes gracilis</i> (Steindachner, 1898)
<i>Lycodes platei</i>	holotype	ZMB 15691		synonym of	<i>Austrolycus laticinctus</i> (Berg, 1895)
<i>Platea insignis</i>	holotype	ZMB 15694		valid as	<i>Dadyanos insignis</i> (Steindachner, 1898)
<i>Paralichthys jordani</i>	syntypes	ZMB 15697		?	Paralichthyidae
<i>Paralichthys coeruleosticta</i>	holotype	ZMB 15698		valid as	<i>Arnoglossus coeruleosticta</i> (Steindachner, 1898)
<i>Galaxias platei</i>	syntypes	ZMB 15702		valid as	<i>Galaxias platei</i> Steindachner, 1898
<i>Paralichthys fernandezianus</i>	holotype		?ZMB 16279	valid as	<i>Paralichthys fernandezianus</i> Steindachner, 1903
<i>Paralichthys hilgendorffii</i>	holotype		ZMB 16280	synonym of	<i>Paralichthys fernandezianus</i> Steindachner, 1903
<i>Raja magellanica</i>	syntype 1 ♀		ZMB 16287	homonym of	<i>Bathyraja magellanica</i> (Philippi, 1902)
<i>Sciaena peruana</i>	syntype 1		ZMB 16290	?	incertae sedis in Sciaenidae
<i>Sciaena peruana</i>	syntype 2		ZMB 16291	?	incertae sedis in Sciaenidae



**Figure 2** - *Raja magellanica* Steindachner, 1903. ZMB 16287, syntype 1, female, approx. 46.5 cm.



**Figure 3** - *Raja magellanica* Steindachner, 1903. Drawing of a male non-type specimen from Norman (1937).

must be considered syntypes (ICZN 72.1.1, 72.4.6, 72.4.1.1). Fricke et al. (2022) only provide details on one specimen deposited in lot NMW 2070 in Vienna, albeit stating that originally two syntypes existed. The

specimen from NMW 2070 is a male of approx. 60 cm total length (Figure 1), as mentioned by Steindachner (1903) for his second syntype. On the previous page he first described a female of 48.2 cm TL.

After having received the information that there is no second specimen from this type series existing at NMW we have analyzed the whereabouts of the species described as new by Steindachner in his two publications on the fishes collected by Ludwig Plate along the Pacific coast of southern South America in 1893-1894 (Steindachner 1898, 1903). With the data retrieved from Fricke et al. (2022) we gained certainty that the type material of all respective species have been sent back to Berlin by Steindachner after description and that the syntype retained in Vienna is the only exception (table 2).

Following the path opened by this perception we obtained confirmation that indeed a specimen labeled *Raja magellanica* exists in ZMB 16287: a female of approx. 46.5 cm (Figure 2). This specimen shows paired white blotches on either side of the back which can be perfectly recognized also in Norman's drawing of a male non-type specimen (Figure 3), who assigned the species to Steindachner's authorship.

With catalog data referring to Ludwig Plate as collector, to Punta Arenas as locality (Figure 4), and a collection number that fits perfectly among the further specimens examined by Steindachner for his 1903 addendum on Plate's fishes from Chile (table

2), there is no room for doubt that this specimen in ZMB 16287 is a so far unrecognized syntype of *Raja magellanica* Steindachner, 1903.

The type status of this specimen is also corroborated by the asterisk drawn on the jar label (Figure 4). Bauer and Günther (1995) mention this practice in ZMB's herpetology for lacertid syntypes, being this a traditional way of marking type material also in the ichthyological collection (pers. comm. Assel). Together with the catalog data a note was found saying "taxon described by Philippi 1902, thus no type material. 3.VI.1987" (pers. comm. Assel). This erroneous conclusion was most probably the reason why specimen ZMB 16287 was not listed in the type catalog of Chondrichthyes hosted at ZMB published by Paepke and Schmidt (1988). It had not been understood that Steindachner formally erected a new species and did not refer to Philippi's homonymous *Raja magellanica*.

Steindachner started the description of the male syntype by informing that the Vienna museum held a second specimen from the same locality. In fact, for this one he did not mention Plate as a collector, nor did he provide any information that this specimen is not related to the title of his publication on Plate's collection. The old labels of NMW 2070 (Figures 5-6) indicate



Figure 4 - Original label on jar of ZMB 16287.



Figure 5-6 - Old labels of NMW 2070, indicating the 'ship Donau' and '1902'.

the year 1902 and that this specimen had been collected at Punta Arenas by a ship called *Donau*. The S.M.S. *Donau* was a corvette of the Austro-Hungarian navy which conducted a circumglobal voyage in 1900-1901 (Gyarmati 2021). On her way from Argentina to Peru, the *Donau* has passed the Strait of Magellan and anchored at Punta Arenas in the second week of September 1900 (Halpern 1998). The label information regarding '1902' does not indicate the moment of collection, but rather the year in which the specimen arrived to the collection at NMW. Hence, this second syntype was never part of the Plate collection and as such not to be returned to Berlin, but was property of the Vienna museum where it remained.

### Resolving the homonymy: *Raja cyanoplax* nom. nov.

For having originally been combined with the same generic name, *Raja magellanica* Philippi, 1902, and *Raja magellanica* Steindachner, 1903, are primary homonyms and Steindachner's junior name is permanently invalid (57.2). The junior homonym cannot be protected under the concept of prevailing usage as both were erected after 1899 and thus, fail to comply with ICZN 23.9.1.1.

To our knowledge no potentially valid synonym for *Raja magellanica* Steindachner, 1903 is available (60.1) and we hereby resolve this homonymy by proposing a replacement name (60.3): *Raja cyanoplax* nom. nov.

**Etymology:** from κύανος (kyanos) for a very dark blue, and πλάξ (plax) for plains, anything flat and wide, or a broad surface. In references to the expression 'Pampa Azul' as used in Argentina for the marine continuation of the national territory. In style of the term 'Amazônia Azul'

utilized for the Exclusive Economic Zone of Brazil. A noun in apposition.

### Taxonomy vs. nomenclature

During the review process for this contribution the question came up if the existing homonymy should be resolved without testing a potential synonymy simultaneously. This shows that there is still confusion about the delimitation between taxonomy and nomenclature.

Dubois (2017) provided a very suitable differentiation: "The material basis of taxonomy is composed of specimens, i.e. usually dead organisms fixed and preserved, and of tissues, molecules, sounds or other (by)products originating from them. Specimens are material objects and as such can be discovered, collected, examined, characterised and conserved. On the basis of the information derived from these specimens, taxonomists recognize classificatory units, taxa. Taxa are concepts, not objects, and as such they can be 'defined' but not 'discovered'."

"Taxonomists use scientific names in order to label and communicate about the taxonomic concepts that they create. Names are applied to the taxa in a given classification according to the codified rules of nomenclature, based on 'typification' i.e. by reference to archived 'type' specimens..." (Kennedy et al. 2005). This can be simplified to the tenet that 'a taxon has a circumscription, while a name has a type'. The mixing-up of the two related yet separate fields of taxonomy and nomenclature does not seem to be a problem in zoology only. Bhattacharjee et al. recently (2020) even made the "Proposal to clarify that a circumscription applies to a taxon, not to a name" should become an amendment to the Code of Botanical Nomenclature.



The authors of the International Code of Zoological Nomenclature are well aware about this difference and in the introduction of The Code assure “the freedom of scientists to classify animals according to taxonomic judgments” and make it the first and second Principle that “The Code refrains from infringing upon taxonomic judgment, which must not be made subject to regulation or restraint” and that “Nomenclature does not determine the inclusiveness or exclusiveness of any taxon, nor the rank to be accorded to any assemblage of animals, but, rather, provides the name that is to be used for a taxon whatever taxonomic limits and rank are given to it”.

Whether the two taxa (concepts) of Philippi and Steindachner are synonyms is an open taxonomical question, while the homonymy and the herefrom resulting permanent invalidity is an undisputable fact. As Philippi’s circumscription is not good enough to distinguish his taxon from others we cannot really make the decision to follow his concept or not. Thus, the only method to connect Philippi’s taxon with the name he assigned would be to provide absolutely unquestionable proof for the rediscovery of at least one of Philippi’s syntypes. If this could not be achieved, in this very special situation of the shared type locality, no attempt to replace missing types by new (neotypical and topotypical) specimens could be an option due to the impossibility of evidence that a neotype would not be a specimen representing Steindachner’s taxon. Without a suitable circumscription or an original type specimen, Philippi’s *Raja magellanica* may even be considered a *nomen dubium* in the future, being Steindachner’s name no fall-back solution due to its permanent invalidity. Before any taxonomical analysis could be undertaken to solve this problem, very thorough curational work is required to unequivocally prove the provenance of

eventually existing type specimens.

Consequently, the present proposal of a replacement name for *Raja magellanica* Steindachner, 1903 does not restrain nomenclatural stability but in the contrary does support it in the spirit of The Code.

## CONCLUSIONS

Of course in a first place the ICZN requires to remove homonymies, but our present nomenclatural act shall also have a practical impact on ichthyological research. In order to avoid the ongoing random usage of either Philippi or Steindachner as author for *Raja magellanica*, the replacement name will now urge investigators to determine, or at least assume, which of the two taxa (concepts) they are dealing with during their research and/or want to mention in their respective publications. To define the taxonomic status of the two species is beyond the scope of the present note.

Unfortunately for the time being a comparison can only be done based on the descriptions of Philippi and Steindachner. *Raja magellanica* and *R. cyanoplax* may both be valid species, or synonyms to each other (Norman 1937), or one of them may be synonymous with yet another species. Anyhow, for sorting this out in the future it would first be necessary to determine unambiguously if there are any surviving syntypes of *Raja magellanica* Philippi, 1902, and if so, in a second step compare this/these with the two syntypes of *Raja cyanoplax* at NMW and ZMB. Especially the text of Philippi does not seem to be sufficiently detailed for judging the validity of his taxon without examination of original type material. Also, he only compared his specimens with *Raja atra*, a synonym of *Raja undulata* which is distributed in the seas of Europe and parts of the northeast-

ern Atlantic Ocean, but not with any species of ray from the area. It is somehow incomprehensible that he did not compare his specimens of *Raja magellanica* at least with species of rajid rays described by himself from Chilean waters as *R. cynosbatus* Philippi, 1896, *R. flavirostris* Philippi, 1892, and *R. oxyptera* Philippi, 1892, or with *R. chilensis* Guichenot, 1848.

If no original type material of *Raja magellanica* Philippi, 1902 could be undoubtedly identified, in this case it is not an option to designate a neotype. The Code requires that a neotype comes 'as nearly as practicable from the original type locality' (75.3.6). As both species have been described from the Strait of Magellan it would be very difficult to prove that a chosen neotype specimen does not belong to *Raja magellanica* Steindachner, 1903.

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