

# Ichthyosauromorph Taxonomy

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## Introduction

This document presents a list of valid ichthyosauromorph species. It is a constant work in progress given the pace at which new ichthyosaur research happens. Perhaps not as rapidly as some other fossil groups, but certainly fast enough to require some attention.

It’s also intended to give some handle on the vast literature available for ichthyosaurs and their near relatives by means of synonymy lists. I’ve chosen this format for it’s familiarity, but also because I rather enjoy the process and trials to building a complete yet usable synonymy list.

I’ve used this also as an exercise in typography – like much of my more public output. This document is typeset in Lua<sup>La</sup>TeX using typefaces with various nice features – old style figures, small capitals, optical sizes. The fonts used are nonetheless open source, courtesy of their development at Adobe.

### Layout of synonymy lists

The synonymy lists are presented as unruled tables:

Example

Cartorhynchus lenticarpus Motani et al., 2015a				
URN:LSID:ZOOBANK.ORG:ACT:FCCC9BB7-FD52-42F4-B2EC-B0B7E2A1CA32				
<status>	<year>	<Taxon>	<Authority, Year>	<reference, page> [<occurrence information>.] <comments>
*	2015a	Cartorhynchus lenticarpus	Motani et al., 2015a	Motani et al. p 485 [Upper Member, Nanlinghu Formation, Subcolumbites Ammonite Biozone (Olenekian, Lower Triassic, Triassic); Majishan Quarry, Chaohu City, Hefei, China (UTM WGS84 50R 577953 3499041 = 31° 37' 26" N 117° 49' 19" E).] LSID: URN:LSID:ZOOBANK.ORG:PUB:9CFFEE63-2B8A-4C01-B9C7-CD3C53D684F5

If a work names a new species or combination, the LSID of the act is included as a link button alongside the taxon name,<sup>1</sup> where this is available. Similarly all works that have publication LSIDs have those included too.

<sup>1</sup> i.e. 

### *'Richter symbols' & certainty of assignment*

I've followed the recommendations of Matthews (1973), pretty much to the letter, for the symbols and styles included in the leftmost two columns.

#### *In front of the year* symbols in the leftmost column

- \* (asterisk) this publication marks the name becoming valid under ICZN rules.
- . (dot/period) we accept responsibility for attaching this reference to the taxon in question.
- (no sign) we cannot responsibly attach this reference, but do not doubt it.
- ? (question mark) there is some doubt in attaching this reference to the current taxon.
- v* *vidimus*, we have checked the deposited specimens. Can be accompanied by the above tokens:
  - v*\* we have seen the type specimen(s).
  - v*. we take responsibility for attaching the deposited specimens.
  - v* we do not take responsibility for attaching the deposited specimens.
  - v*? the specimens cannot be certainly assigned to this taxon.
- (?) the year of publication is uncertain.
- p* only part of the deposited specimens can be assigned to the current taxon.
  - vp* the deposited specimens have been checked and only part of them belong to this taxon.

#### *And by formatting the year* surrounding or changing the font

- 1881* (italicised) this work does not add morphological information, only occurrence information.
- 1881 (upright) the work adds to our knowledge on this taxon.
- (1881) (parentheses surrounding the year) the date of this work is uncertain.

### *Life Science Identifiers (LSID)*

*Life science identifiers*<sup>2</sup> are unique keys to identify and locate information important to the various life sciences. Relevant to this document are the identifiers used to link nomenclatural acts in *ZooBank*,<sup>3</sup> the official registry of the International Commission on Zoological Nomenclature (ICZN). Naming new taxa in the recent literature requires registering the act in ZooBank to be 'officially' recognised.<sup>4</sup>

Many of the taxa included herein were named before ZooBank was yet a glint in anyone's eye, although they may well have been included in the printed equivalent *Zoological Record*. I've registered several new publications and acts where these were not in ZooBank before, that

<sup>2</sup> <https://en.wikipedia.org/wiki/LSID>

<sup>3</sup> <http://zoobank.org>

<sup>4</sup> [https://www.iczn.org/the-code/the-international-code-of-zoological-nomenclature-the-code-online/\(Article 8.5.3\);https://en.wikipedia.org/wiki/ZooBank](https://www.iczn.org/the-code/the-international-code-of-zoological-nomenclature-the-code-online/(Article%208.5.3);https://en.wikipedia.org/wiki/ZooBank)

may be used henceforth. At the moment, these include only the original naming of species, not new combinations of specific and generic names.

## Links in this document

The L<sup>A</sup>T<sub>E</sub>X document from which this PDF is compiled includes the *hyperref* package to provide links within the document<sup>5</sup> and to other references on the web.<sup>6</sup> These have different colours, as follows:

<sup>5</sup> e.g. citations and sections

<sup>6</sup> e.g. LSIDs and DOIs

**Citation** links from the year of a citation to its reference in the bibliography.

**URL** often web links, particularly to websites, DOI links, LSID with the address fully written.

**LSID** link to a ZooBank LSID for an act.

## List of Species

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<i>Catutosaurus gasparinae</i>	6				
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<i>Phantomosaurus neubigi</i>	10				
<i>Platypterygius hercynicus</i>	10				
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<i>Platypterygius hautali</i>	10				
<i>Platypterygius ochevi</i>	10				
<i>Platypterygius platydactylus</i>	10				
<i>Protoichthyosaurus applebyi</i>	10				
<i>Protoichthyosaurus prostaxalis</i>	10				
<i>Qianichthyosaurus xingyiensis</i>	10				
<i>Qianichthyosaurus zhoui</i>	10				
<i>Quasianosteosaurus vikinghoegdai</i>	10				
<i>Sclerocormus parviceps</i>	10				
<i>Shastasaurus alexandrae</i>	10				
<i>Shastasaurus liangae</i>	10				
<i>Shastasaurus pacificus</i>	10				
<i>Shastasaurus sikkaniensis</i>	10				
<i>Shonisaurus popularis</i>	10				
<i>Simbirskiasaurus birjukovi</i>	10				
<i>Sisteronia seeleyi</i>	10				
<i>Stenopterygius aalenensis</i>	10				
<i>Stenopterygius quadricissus</i>	10				
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<i>Stenopterygius uniter</i>	10				
<i>Suevoleviathan disinteger</i>	10				
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<i>Temnodontosaurus azerguensis</i>	10				
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<i>Undorosaurus trautscholdi</i>	11				
<i>Utatusaurus hataii</i>	11				
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# ICHTHYOSAUIROMORPHA Motani *et al.*, 2015a

## HUPEHSUCHIA Carroll & Zhi-Ming, 1991

### *Eohupehsuchus brevicollis* Chen *et al.*, 2014a

URN:LSID:ZOOBANK.ORG:ACT:94F905DD-8995-4477-841A-85DEDA8C8287

v \* 2014a *Eohupehsuchus brevicollis* Chen *et al.*, 2014a  
LSID

Chen *et al.* p 4 [Jialingjiang Formation (upper Spathian, Lower Triassic, Triassic); Yangping, Yuan'an County, Hubei Province, China.]  
URN:LSID:ZOOBANK.ORG:PUB:1B8887A9-F513-427D-BE9A-DBBB15DD9A44

### *Eretmorhipis carrolldongi* Chen *et al.*, 2015

URN:LSID:ZOOBANK.ORG:ACT:317DA1DF-4381-43F5-90CE-ADFD680F7178

1991 Hupehsuchia n. gen. n. sp.

Carroll & Zhi-Ming p 143 [Jialingjiang Formation (upper Spathian, Lower Triassic, Triassic); Tuling, Baihechuan, Xunjiang District, Nanzhang County, Hubei Province, China.]

v \* 2015 *Eretmorhipis carrolldongi* Chen *et al.*, 2015  
LSID

Chen *et al.* p 4 [Jialingjiang Formation (upper Spathian, Lower Triassic, Triassic); Yingzhishang, Yuan'an County, Hubei Province, China.]  
URN:LSID:ZOOBANK.ORG:PUB:132627FE-9142-4EE2-BACB-08CAFC65C3E2

### *Hupehsuchus nanchangensis* Young & Dong, 1972

URN:LSID:ZOOBANK.ORG:ACT:416BF673-273A-4F3D-99B3-F369DBEC6CEA

v \* 1972 *Hupehsuchus nanchangensis* Young & Dong, 1972  
LSID

Young & Dong p 28 [Jialingjiang Formation (upper Spathian, Lower Triassic, Triassic).] URN:LSID:ZOOBANK.ORG:PUB:D2CAD534-D3B0-4B2B-871F-7011E4B1EE74

### *Nanchangosaurus suni* Wang, 1959

\* 1959 *Nanchangosaurus suni* Wang, 1959  
LSID

Wang [JialingJiang Formation (upper Spathian, Lower Triassic, Triassic).]

2014c *Nanchangosaurus suni* Wang, 1959

URN:LSID:ZOOBANK.ORG:PUB:C31DBAA9-EDA9-4D29-92DD-BFC80461F0F4  
Chen *et al.* p 3 [JialingJiang Formation (upper Spathian, Lower Triassic, Triassic); Yuan'an County, Hubei Province, China.]

### *Parahupehsuchus longus* Chen *et al.*, 2014b

URN:LSID:ZOOBANK.ORG:ACT:0B2F1D4D-0435-496F-B1C0-6913F265240F

v \* 2014b *Parahupehsuchus longus* Chen *et al.*, 2014b  
LSID

Chen *et al.* p 3 [JialingJiang Formation (upper Spathian, Lower Triassic, Triassic); Yuan'an County, Hubei Province, China.] URN:LSID:ZOOBANK.ORG:PUB:0F2EED52-FOA2-4125-B96A-8E39E9854DBE

## ICHTHYOSAUIRIFORMES Motani *et al.*, 2015a

### *Acamptonectes densus* Fischer *et al.*, 2012

URN:LSID:ZOOBANK.ORG:ACT:AAB4BA7E-F53D-4962-8A9C-3240DFE2C4D8

v \* 2012 *Acamptonectes densus* Fischer *et al.*, 2012  
LSID

Fischer *et al.* p 3 [Speeton Clay Formation, *Simbiskites concinnus/staffi* ammonite biozones (basal-upper Hauterivian, Lower Cretaceous, Cretaceous); Speeton, Yorkshire, U.K.] URN:LSID:ZOOBANK.ORG:PUB:66B3821A-1025-48DC-9C5F-7E6277FFD975

2012 *Acamptonectes densus* Fischer *et al.*, 2012

Fischer *et al.* p 3 [*Simbiskites concinnus/staffi* ammonite biozones (basal-upper Hauterivian, Lower Cretaceous, Cretaceous); Cremlingen, Lower Saxony, Germany.]  
URN:LSID:ZOOBANK.ORG:PUB:66B3821A-1025-48DC-9C5F-7E6277FFD975

### *Acuetzpalin carranzai* Barrientos-Lara *et al.*, 2020

URN:LSID:ZOOBANK.ORG:ACT:90130A25-6901-4DA6-84B8-D0680DF9BCAB

\* 2020 *Acuetzpalin carranzai* Barrientos-Lara *et al.*, 2020  
LSID

Barrientos-Lara *et al.* p 3 [La Casita Formation (Kimmeridgian, Upper Jurassic, Jurassic); Cerro de Palotes, near of Cuencamé, Durango state, Northeast Mexico.]  
URN:LSID:ZOOBANK.ORG:PUB:2287DBB3-3E85-409D-9D97-A946DE865FCB

### *Aegirosaurus leptospondylus* (Wagner, 1853)

\* 1853 *Ichthyosaurus leptospondylus* Wagner, 1853

Wagner [Solnhofen Formation (Lower Tithonian, Upper Jurassic, Jurassic); Germany.]

2000 *Aegirosaurus leptospondylus* (Wagner, 1853)

Bardet & Fernández p 504 [Malm ζ 2b, Solnhofen Formation (early Lower Tithonian, Upper Jurassic, Jurassic); Borsheim, Schrandel quarry district; Bavaria, Germany.]

### *Arthropterygius chrisorum* (Russell, 1993)

- \* 1993 *Ophthalmosaurus chrisorum* Russell, 1993 Russell p 198 [Ringnes Formation (Oxfordian–Kimmeridgian, Upper Jurassic, Jurassic); Cape Grassy, Melville Island, Canada (UTM WGS84 12X 433220 8453461 = 76° 9' 4" N 113° 30' W).]
- ? 2017 *Keilhauia nui* Delsett *et al.*, 2017 Delsett *et al.* p 7 [Slottsmøya Member, Agardfjellet Formation (early Berriasian, Lower Cretaceous, Cretaceous); Janusfjellet, Spitsbergen, Svalbard (UTM WGS84 33X 0518847 8696044 = 78.3363734°N 15.8351277°E).] *fide* Zverkov & Prilepskaya (2019)
- p 2018 *Palvennia hoybergeti* Druckenmiller *et al.*, 2012 Delsett *et al.* p 8 [UTM WGS84 33X 0519622 8695649 = 78.3327333°N 15.8692035°E] PMO
- 2019 *Arthropterygius chrisorum* (Russell, 1993) Zverkov & Prilepskaya p 15

### *Arthropterygius hoybergeti* (Druckenmiller *et al.*, 2012)

URN:LSID:ZOOBANK.ORG:ACT:03BA5E23-17B5-4AB1-B98A-681B9968A3F9

- \* 2012 *Palvennia hoybergeti* Druckenmiller *et al.*, 2012 **LSID** Druckenmiller *et al.* p 326 [Slottsmøya Member, Agardfjellet Formation (Middle Volgian, Upper Jurassic, Jurassic); Spitsbergen, Svalbard (UTM WGS84 33X 0518775 8696150 = 78.3373322°N 15.8320045°E).] URN:LSID:ZOOBANK.ORG:PUB:8791DF9D-E15B-4470-A02A-F05ECC3BB7D6
- p 2018 *Palvennia hoybergeti* Druckenmiller *et al.*, 2012 Delsett *et al.* p 8 [UTM WGS84 33X 0519622 8695649 = 78.3327333°N 15.8692035°E]
- 2019 *Arthropterygius hoybergeti* (Druckenmiller *et al.*, 2012) Zverkov & Prilepskaya p 31

### *Arthropterygius lundii* (Roberts *et al.*, 2014)

URN:LSID:ZOOBANK.ORG:ACT:71E65B35-7215-44AA-BCE7-E9A3B265E04F

- \* 2014 *Janusaurus lundii* Roberts *et al.*, 2014 **LSID** Roberts *et al.* p 4 [Slottsmøya Member, Agardfjellet Formation (middle Volgian, Upper Jurassic, Jurassic); Janusfjellet, Spitsbergen, Svalbard (UTM WGS84 33X 518821 8696195 = 78° 20.264' N 15° 50.044' E).] URN:LSID:ZOOBANK.ORG:PUB:FF4834F1-AEED-4B08-8E74-7125801C1B3E *fide* Zverkov & Prilepskaya (2019)
- 2016 *Janusaurus lundii* Roberts *et al.*, 2014 Delsett *et al.*
- 2017 *Janusaurus lundii* Roberts *et al.*, 2014 Delsett *et al.*
- 2019 *Arthropterygius lundii* (Roberts *et al.*, 2014) Zverkov & Prilepskaya p 40

### *Arthropterygius thalassonotus* Campos *et al.*, 2020

URN:LSID:ZOOBANK.ORG:ACT:3F09C714-961C-433C-B056-DFD3F8E3B5CD

- \* 2020 *Arthropterygius thalassonotus* Campos *et al.*, 2020 **LSID** Campos *et al.* p 184 [Vaca Muerta Formation (late Tithonian, Upper Jurassic, Jurassic); Yesera del Tromen–Pampa Tril area, north-western Neuquén Province, Argentina.] URN:LSID:ZOOBANK.ORG:PUB:A668AA96-CE4F-442E-AD3E-B757AD580CFC

### *Arthropterygius volgensis* (Kasansky1903TOEPIKU)

2019 *Arthropterygius volgensis* (Kasansky1903TOEPIKU)

Zverkov & Prilepskaya p 44 [Dorsoplanites panderi Ammonite Biozone (middle Volgian, Upper Jurassic, Jurassic); mouth of the Berezoviy Dol Ravine near Novaya Racheika Village, Syzran District, Samara Region, Russian.]

### *Athabascasaurus bitumineus* Druckenmiller & Maxwell, 2010

URN:LSID:ZOOBANK.ORG:ACT:1CE8B3C1-8771-443A-8831-00025FB84CA6

- v \* 2010 *Athabascasaurus bitumineus* Druckenmiller & Maxwell, 2010 **LSID** Druckenmiller & Maxwell p 1039 [Wabiskaw Member, Clearwater Formation (lowermost Albian, Lower Cretaceous, Cretaceous); 35 km north of Fort McMurray, Alberta, Canada (UTM WGS84 12V 459464 6317120 = 56° 59' 45" N 111° 40' 02" W).] URN:LSID:ZOOBANK.ORG:PUB:2540811F-95E5-45BB-9B32-8E0416F61681

### *Auroroborealia incognita* Zverkov *et al.*, 2021

URN:LSID:ZOOBANK.ORG:ACT:5EFAB647-9971-4361-925D-A64B665521E9

- \* 2021 *Auroroborealia incognita* Zverkov *et al.*, 2021 **LSID** Zverkov *et al.* p 6 [Pinacoceras verchojanicum Ammonoid Biozone (lower Norian, Upper Triassic, Triassic); Koteln Island, New Siberian Islands, Russia.]

### *Barracudasauroides panxianensis* (Jiang *et al.*, 2006)

URN:LSID:ZOOBANK.ORG:ACT:05C7C635-6E53-4070-8856-047553A6B0BF

- \* 2006 *Mixosaurus panxianensis* Jiang *et al.*, 2006 **LSID** Jiang *et al.* p 62 [Upper Member, Guanling Formation, Nicoraella germanicus Conodont Biozone (Pelsonian, Anisian, Middle Triassic, Triassic); Yangjuan Village, Xinmin District, Panxian County, Guizhou Province, China.] URN:LSID:ZOOBANK.ORG:PUB:A3ED6813-7AA8-47CA-8197-04CA562417DF
- 2010 *Barracudasauroides panxianensis* (Maisch, 2010) Maisch p 161

## *Besanosaurus leptorhynchus* Dal Sasso & Pinna, 1996

URN:LSID:ZOOBANK.ORG:ACT:47C32E1B-18FE-40CF-B98E-E9A537601E43

- \* 1996 *Besanosaurus leptorhynchus* Dal Sasso & Pinna, 1996 LSID Dal Sasso & Pinna p 4 [Besano Formation, *Nevadites secedensis* Ammonite Biozone (Ilyrian, Anisian, Middle Triassic, Triassic); Sasso Caldo, Italy.]  
URN:LSID:ZOOBANK.ORG:PUB:EEA0F11C-D7BF-41BE-856E-DC2F3599273A
- 1997 *Mikadocephalus gracilirostris* Maisch & Matzke, 1997 Maisch & Matzke p 268 [Besano Formation, *Reitziites reitzi*-*Nevadites secedensis* ammonoid biozones (Ilyrian, Anisian, Middle Triassic, Triassic); Switzerland.]
- 2021 *Besanosaurus leptorhynchus* Dal Sasso & Pinna, 1996 Bindellini *et al.* p 20 [Besano Formation, *Nevadites secedensis* Ammonoid Biozone (Ilyrian, Anisian, Middle Triassic, Triassic); Sasso Caldo, Italy.]
- 2021 *Besanosaurus leptorhynchus* Dal Sasso & Pinna, 1996 Bindellini *et al.* p 20 [Besano Formation, *Nevadites secedensis* Ammonoid Biozone (Ilyrian, Anisian, Middle Triassic, Triassic); Val Stelle, Tre Fontane, Switzerland.]

## *Brachypterygius alekseevi* (Arkhangelsky, 2001)

- \* 2001 *Otschevia alekseevi* Arkhangelsky, 2001 Arkhangelsky p 629 [Dorsoplanites *panderi* Ammonite Biozone (Volgian, Upper Jurassic, Jurassic); Volga River, 18 km north of Ulyanovsk, Ulyanovsk District, Ulyanovsk Region, Russian.]
- 2010 *Brachypterygius alekseevi* (Arkhangelsky, 2001) Maisch p 167
- 2015 *Grendelius alekseevi* (Zverkov *et al.*, 2015) Zverkov *et al.* p 562

## *Brachypterygius extremus* (Boulenger, 1904)

URN:LSID:ZOOBANK.ORG:ACT:5B04A1AF-9081-417D-9BFC-DC3AFA6DAAE3

- v \* 1904 *Ichthyosaurus extremus* Boulenger, 1904 LSID Boulenger p 425 [Kimmeridge Clay Formation (Kimmeridgian-Tithonian, Upper Jurassic, Jurassic); Smallmouth Sands, Weymouth, Dorset, U.K.]  
URN:LSID:ZOOBANK.ORG:PUB:98E5CD50-9FAF-458D-9D0A-9464EF76F429
- v 1922 *Brachypterygius extremus* (Boulenger, 1904) von Huene p 97 URN:LSID:ZOOBANK.ORG:PUB:2E316B82-8A25-43AE-A1C5-3785124EA6AE
- v \* 1976 *Grendelius mordax* McGowan, 1976 McGowan p 671 [Kimmeridge Clay Formation, *Aulacostephanus autissiodorensis* Ammonite Biozone (middle Kimmeridgian, Upper Jurassic, Jurassic); Stowbridge, Norfolk, U.K. (UTM WGS84 31U 321960 5835045 = 52.6361361°N 0.368878°E).]

## *Brachypterygius pseudoscythica* (Efimov, 1998)

- \* 1998 *Otschevia pseudoscythica* Efimov, 1998 Efimov p 83 [*Illoaia pseudoscythica* Ammonite Biozone (Volgian, Upper Jurassic, Jurassic); Volga River, Ulyanovsk District, Ulyanovsk Region, Russia.]
- 2000 *Brachypterygius pseudoscythius* (Efimov, 1998) [sic.] Maisch & Matzke p 79
- 2015 *Grendelius pseudoscythicus* (Efimov, 1998) [sic.] Zverkov *et al.* p 561

## *Californosaurus perrini* (Merriam, 1902)

- \* 1902 *Shastasaurus perrini* Merriam, 1902 Merriam p 89 [Hosselkus Limestone Formation; Shasta County, California, U.S.A.]
- 1905 *Delphinosaurus perrini* (Merriam, 1902) Merriam p 24
- 1934 *Californosaurus perrini* (Merriam, 1902) Kuhn p 27 [*non Delphinosaurus* von Eichwald, 1853]

## *Callawayia neoscapularis* (McGowan, 1994)

- \* 1994 *Shastasaurus neoscapularis* McGowan, 1994 McGowan p 170 [Pardonet Formation, *Epigondolella triangularis* Conodont Biozone (Norian, Upper Triassic, Triassic); Peace Reach, Williston Lake, British Columbia, Canada.]
- 2000 *Callawayia neoscapularis* (McGowan, 1994) Maisch & Matzke p 69 New combination takes priority over *Metashastasaurus* (Nicholls & Manabe, 2001, p. 1001).
- 2001 *Metashastasaurus neoscapularis* (McGowan, 1994) Nicholls & Manabe p 985 [Pardonet Formation (Norian, Upper Triassic, Triassic); Chicken Creek, British Columbia, Canada.]

## *Cartorhynchus lenticarpus* Motani *et al.*, 2015a

URN:LSID:ZOOBANK.ORG:ACT:FC9C9BB7-FD52-42F4-B2EC-B0B7E2A1CA32

- \* 2015a *Cartorhynchus lenticarpus* Motani *et al.*, 2015a LSID Motani *et al.* p 485 [Upper Member, Nanlinghu Formation, *Subcolumbites* Ammonite Biozone (Olenekian, Lower Triassic, Triassic); Majishan Quarry, Chaohu City, Hefei, China (UTM WGS84 50R 577953 3499041 = 31° 37' 26" N 117° 49' 19" E).]  
URN:LSID:ZOOBANK.ORG:PUB:9CFEE63-2B8A-4C01-B9C7-CD3C53D684F5

## *Catutosaurus gasparinae* Fernández *et al.*, 2021

URN:LSID:ZOOBANK.ORG:ACT:BC3E93E7-C574-4B50-9315-2CDAD067C721

- 1988 *Ophthalmosaurus monocharactus* Appleby, 1956 Gasparini p 3 [Vaca Muerta Formation.]



- 2000 *Aegirosaurus* sp. Bardet & Fernández, 2000  
 \* 2021 *Catutosaurus gasparinae* Fernández *et al.*, 2021 **LSID**  
 Maisch & Matzke p 87  
 Fernández *et al.* p 2 [Los Catutos Member, Vaca Muerta Formation, *Aulaspinctes proximus*–*Windhausenicerias internispinosum* ammonoid biozones (upper middle–lower upper Tithonian, Upper Jurassic, Jurassic); El Ministerio Quarry, Los Catutos, Zapala Department, Neuquén Province, Argentina.]  
 URN:LSID:ZOOBANK.ORG:PUB:FDB6C301-BAE5-4212-9310-BE09E24605F9 SUPPLEMENTAL DATA—SUPPLEMENTAL MATERIALS ARE AVAILABLE FOR THIS ARTICLE FOR FREE AT W

### *Caypullisaurus bonapartei* Fernández, 1997

- URN:LSID:ZOOBANK.ORG:ACT:046EED7E-C624-465F-B0D4-1BB782CCD97D  
 \* 1997 *Caypullisaurus bonapartei* Fernández, 1997 **LSID**  
 Fernández p 480 [Vaca Muerta Formation, *Virgatospinctes mendozanus* Ammonite Biozone (late Tithonian, Upper Jurassic, Jurassic); Cerro Lotena, Neuquén Province, northwest patagonia, Argentina (UTM WGS84 19H 442358 5661434 = 39° 11' 40" N 69° 40' 03" s).] URN:LSID:ZOOBANK.ORG:PUB:1A5DDCD0-1713-410A-AE1B-F02EA1F1DF77

### *Cetarthrosaurus walkeri* (Seeley, 1873)

- \* 1869 *Ichthyosaurus walkeri* Seeley, 1869  
 Seeley p 65 [Gault Formation (late Albian, Lower Cretaceous, Cretaceous).] Re-worked into Cambridge Greensand Member (Lower Chalk Formation; early Cenomanian). Described from a cast.  
 Seeley p 505  
 1873 *Cetarthrosaurus walkeri* (Seeley, 1869)  
 2014a *Cetarthrosaurus walkeri* (Seeley, 1869)  
 Fischer *et al.* p 17

### *Chacaicosaurus cayi* Fernández, 1994

- \* 1994 *Chacaicosaurus cayi* Fernández, 1994  
 Fernández p 293 [Les Molles Formation (early Bajocian, Middle Jurassic, Jurassic); Chacaico Sur, Patagonia, Argentina.]  
 2007 *Stenopterygius cayi* (Fernández, 1994)  
 Fernández p 277

### *Chaohusaurus brevifemoralis* Huang *et al.*, 2019

- URN:LSID:ZOOBANK.ORG:ACT:B0085E53-C6E4-4C2E-96FF-6D485D3585BA  
 p 1998a *Chaohusaurus chaoxianensis* (Chen, 1985) Motani & You  
 p 1998b *Chaohusaurus geishanensis* Young & Dong, 1972 Motani & You p 533  
 p 2015b *Chaohusaurus chaoxianensis* (Chen, 1985) Motani *et al.* p e892011-3  
 p 2017 *Chaohusaurus chaoxianensis* (Chen, 1985) Zhou *et al.* p e1343831-3  
 \* 2019 *Chaohusaurus brevifemoralis* Huang *et al.*, 2019 **LSID**  
 Huang *et al.* p 7 [Upper Member, Nanlinghu Formation, *Subcolumbites* Ammonoid Biozone (Spathian, Olenekian, Lower Triassic, Triassic); Majiashan, Anhui Province, China.] URN:LSID:ZOOBANK.ORG:PUB:3FA09089-C940-4499-ABBC-B48F0F70F38E

### *Chaohusaurus chaoxianensis* (Chen, 1985)

- \* 1985 *Anhuisaurus chaoxianensis* Chen, 1985  
 Chen p 140 [Upper Member, Nanlinghu Formation (Spathian, Olenekian, Lower Triassic, Triassic); Majiashan, Anhui Province, China.]  
 \* 1985 *Anhuisaurus faciles* Chen, 1985  
 Chen p 142 [Upper Member, Nanlinghu Formation (Spathian, Olenekian, Lower Triassic, Triassic); Majiashan, Anhui Province, China.]  
 1991 *Chensaurus chaoxianensis* (Chen, 1985) Mazin *et al.* p 1207  
 1991 *Chensaurus faciles* (Chen, 1985) Mazin *et al.* p 1207  
 1998a *Chaohusaurus chaoxianensis* (Chen, 1985) Motani & You  
 p 1998b *Chaohusaurus geishanensis* Young & Dong, 1972 Motani & You p 533  
 2015b *Chaohusaurus chaoxianensis* (Chen, 1985) Motani *et al.* p e892011-3

### *Chaohusaurus geishanensis* Young & Dong, 1972

- \* 1972 *Chaohusaurus geishanensis* Young & Dong, 1972  
 Young & Dong p 11 [Qinglong Formation (Spathian, Lower Triassic, Triassic); Chao County, Anhui Province, China.]

### *Chaohusaurus zhangjiawanensis* Chen *et al.*, 2013

- v \* 2013 *Chaohusaurus zhangjiawanensis* Chen *et al.*, 2013  
 Chen *et al.* p 673 [Third Member, Jialingjiang Formation, *Neospathodus homeri*–*N. triangularis* Conodont Biozone (upper Spathian, Lower Triassic, Triassic); Zhangjiawan Village, Yangping Town, Yuan'an County, Hubei Province, China.]

### *Contectopalatus atavus* (Quenstedt, 1852)

- \* 1852 *Ichthyosaurus atavus* Quenstedt, 1852  
 Quenstedt p 129 [Wellenkalk Formation (Anisian, Middle Triassic, Triassic); Althengstett, Baden-Württemberg, Germany.]

- 1891 *Mixosaurus atavus atavus* (Quenstedt, 1852) Fraas p 38 *fide* McGowan & Motani (2003, p. 67)  
[as *Mixosaurus atavus* var. *minor*]  
1916 *Mixosaurus atavus* (Quenstedt, 1852) von Huene p 3  
1998b *Contectopalatus atavus* (Quenstedt, 1852) Maisch & Matzke p 115  
2003 *Mixosaurus atavus* (Quenstedt, 1852) McGowan & Motani p 67

*Cymbospondylus buchseri* Sander, 1989

*Cymbospondylus nichollsi* Fröbisch *et al.*, 2006

*Cymbospondylus petrinus* Leidy, 1868

*Cymbospondylus piscosus?* Leidy, 1868

*Cymbospondylus youngorum* Sander *et al.*, 2021

- \* 2021 *Cymbospondylus youngorum* Sander *et al.*, 2021 Sander *et al.* p 1 [Fossil Hill Member, Favret Formation, *Nevadisculites taylora* Ammonoid Biozone (Anisian, Middle Triassic, Triassic); Favret Canyon, Augusta Mountains, Pershing County, Nevada, USA.]

*Dearcmhara shawcrossi* Brusatte *et al.*, 2015

*Eurhinosaurus longirostris* (Mantell, 1851)

*Excalibosaurus costini* McGowan, 1986

*Gengasaurus nicosiai* Paparella *et al.*, 2016

*Grippia longirostris* Wiman, 1929

*Guizhouichthyosaurus tangae* Yin *et al.*, 2000

*Guizhouichthyosaurus wolonggangense* (Chen *et al.*, 2007)

*Gulosaurus helmi* Cuthbertson *et al.*, 2013

*Hauffiopteryx altera* Maxwell & Cortés, 2020

URN:LSID:ZOOBANK.ORG:ACT:A567A292-2A58-495A-839F-FF8382B49479

- p 2005 *Eurhinosaurus longirostris* (Mantell, 1851) Jäger p 29  
\* 2020 *Hauffiopteryx altera* Maxwell & Cortés, 2020 Maxwell & Cortés p 11 [Lias  $\epsilon$ II,4/5, Posidonia Shale Formation, *Harpoceras serpentinum* Ammonoid Biozone, *Harpoceras exaratum* Ammonoid Subbiozone (Toarcian, Lower Jurassic, Jurassic); Dotternhausen-Dormettingen, Bade-Württemberg, Germany.] URN:LSID:ZOOBANK.ORG:PUB:041F166A-28FC-4ED6-AD7C-DF64EF4EF1A7

*Hauffiopteryx typicus* Maisch, 2008

- \* 2020 *Hauffiopteryx typicus* Maisch, 2008 Maxwell & Cortés p 3 [Lias  $\epsilon$ II,4, Posidonia Shale Formation, *Harpoceras serpentinum* Ammonoid Biozone, *Harpoceras exaratum* Ammonoid Subbiozone (Toarcian, Lower Jurassic, Jurassic); Dotternhausen-Dormettingen, Bade-Württemberg, Germany.]

*Himalayasaurus tibetensis* Young & Dong, 1972

- \* 1972 *Himalayasaurus tibetensis* Young & Dong, 1972 Young & Dong p 7 [Langjiexue Group (Norian, Middle Triassic, Triassic); Tulong Area, Xizang, Tibet, China.] URN:LSID:ZOOBANK.ORG:PUB:D2CAD534-D3B0-4B2B-871F-7011E4B1EE74

*Hudsonelpidia brevirostris* McGowan, 1995

*Ichthyosaurus acutirostris* Owen, 1840

*Ichthyosaurus anningae* Lomax & Massare, 2015

*Ichthyosaurus breviceps* Owen, 1881

*Ichthyosaurus communis* Conybeare, 1822

*Ichthyosaurus conybeari* Lydekker, 1888

*Ichthyosaurus larkini* Lomax & Massare, 2017

*Ichthyosaurus somersetensis* Lomax & Massare, 2017

*Isfordosaurus minor* (Wiman, 1910)

*Jabalisaurus metzli* Barrientos-Lara & Alvarado-Ortega, 2021b

URN:LSID:ZOOBANK.ORG:ACT:EAE989-A483-478E-85B0-32995FDC8057

- 2010 *Ophthalmosaurus cf. icenicus* Seeley, 1874 Buchy p 149 [coquina layer, La Casita Formation (upper Kimmeridgian, Upper Jurassic, Jurassic); Sierra El Jabalí, near Gómez Farías, Saltillo, Coahuila, Mexico.]  
2014 *Ophthalmosaurus cf. icenicus* Seeley, 1874 Frey & Stinnesbeck [Sierra El Jabalí, near Gómez Farías, Saltillo, Coahuila, Mexico.]  
\* 2021b *Jabalisaurus metzli* Barrientos-Lara & Alvarado-Ortega, 2021b Alvarado-Ortega, 2021b Barrientos-Lara & Alvarado-Ortega p 4 [coquina layer, La Casita Formation (upper Kimmeridgian, Upper Jurassic, Jurassic); Sierra El Jabalí, near Gómez Farías, Saltillo, Coahuila, Mexico.]



*Kyhytysuka sachicarum* (Páramo-Fonseca, 1997)

- \* 1997 *Platypterygius sachicarum* Páramo-Fonseca, 1997 Páramo-Fonseca p 2 [Arcillolitas Abigarrada Member, Paja Formation (Barremian–Aptian, Lower Cretaceous, Cretaceous); Loma Pedro Luis, Villa de Leyva, Boyacá, Colombia.]
- 2021 *Kyhytysuka sachicarum* (Páramo-Fonseca, 1997) Cortés *et al.* p 2 [Arcillolitas Abigarrada Member, Paja Formation (latest Barremian, Lower Cretaceous, Cretaceous); El Roble Locality, Villa de Leyva, Boyacá, Colombia.] [URN:LSID:ZOOBANK.ORG:PUB:E3FD55AF-2AD1-46CA-A49C-1FB4B102AB2C](https://zoobank.org/PUB:E3FD55AF-2AD1-46CA-A49C-1FB4B102AB2C)

*Leninia stellans* Fischer *et al.*, 2014b

*Leptonectes moorei* McGowan & Milner, 1999

*Leptonectes solei* (McGowan, 1993)

*Leptonectes tenuirostris* (Conybeare, 1822)

*Macgowania janiceps* (McGowan, 1996)

*Maiaspondylus lindoei* Maxwell & Caldwell, 2006

*Malawania anachronus* Fischer *et al.*, 2013

*Mixosaurus cornalianus* (Bassani, 1886)

*Mixosaurus kuhnschneyderi* (Brinkmann, 1998)

*Mixosaurus xindianensis* Chen & Cheng, 2010

*Mollesaurus pariallus* Fernández, 1999

*Muiscasaurus catheti* Maxwell *et al.*, 2016

- \* 2016 *Muiscasaurus catheti* Maxwell *et al.*, 2016 Maxwell *et al.* p 61 [Arcillolitas abigarradas Member, Paja Formation (Barremian–Aptian, Lower Cretaceous, Cretaceous); Vereda Llanitos, Sachica, Boyaca, Colombia ([UTM WGS84 18N 662860 616018](https://www.earthpointonline.com/UTM.aspx?UTM=WGS84+18N+662860+616018) = 05° 34.278' N 73° 31.781' W).]

*Nannopterygius enthekiodon* (Hulke, 1871)

[URN:LSID:ZOOBANK.ORG:ACT:8467F95F-AC53-4EA7-9612-230E9222A6FC](https://zoobank.org/ACT:8467F95F-AC53-4EA7-9612-230E9222A6FC)

- v \* 1871 *Ichthyosaurus enthekiodon* Hulke, 1871 [LSID](https://zoobank.org/LSID) Hulke p 441 [Kimmeridge Clay Formation (Kimmeridgian–Tithonian, Upper Jurassic, Jurassic); Kimmeridge Bay, Dorset, U.K.] [URN:LSID:ZOOBANK.ORG:PUB:4F0E90D0-27FF-409A-9CD5-976F182B8B4C](https://zoobank.org/PUB:4F0E90D0-27FF-409A-9CD5-976F182B8B4C)
- 1922 *Nannopterygius enthekiodon* (Hulke, 1871) von Huene p 98 [URN:LSID:ZOOBANK.ORG:PUB:2E316B82-8A25-43AE-A1C5-3785124EA6AE](https://zoobank.org/PUB:2E316B82-8A25-43AE-A1C5-3785124EA6AE)

*Nannopterygius saveljeviensis* (Arkhangelsky, 1997)

- \* 1997 *Paraophthalmosaurus savejeviensis* Arkhangelsky, 1997 Arkhangelsky p 88
- 1999a *Yasykovia kabanovi* Efimov, 1999a Efimov p 98
- 2020 *Nannopterygius savejeviensis* (Arkhangelsky, 1997) Zverkov & Jacobs p 246 [Volgian, Upper Jurassic, Jurassic.]

*Nannopterygius yasykovi* (Efimov, 1999a)

- \* 1999a *Yasykovia sumini* Efimov, 1999a Efimov p 98

*Ophthalmosaurus icenicus* Seeley, 1874

[URN:LSID:ZOOBANK.ORG:ACT:F598EAB9-08BF-44CF-BBF3-BB940BD24DBE](https://zoobank.org/ACT:F598EAB9-08BF-44CF-BBF3-BB940BD24DBE)

- v \* 1874 *Ophthalmosaurus icenicus* Seeley, 1874 [LSID](https://zoobank.org/LSID) Seeley p 707 [Peterborough Member, Oxford Clay Formation (Callovian, Middle Jurassic, Jurassic); Peterborough, Cambridgeshire.] [URN:LSID:ZOOBANK.ORG:PUB:4C83C9B2-665D-4AD7-8AF8-D365E5491831](https://zoobank.org/PUB:4C83C9B2-665D-4AD7-8AF8-D365E5491831)

*Ophthalmosaurus natans* (Marsh, 1879)

*Parrasaurus yacahuitztli* Barrientos-Lara & Alvarado-Ortega, 2021a

[URN:LSID:ZOOBANK.ORG:ACT:EACD70CD-6B63-4485-9C27-23EFDC64D165](https://zoobank.org/ACT:EACD70CD-6B63-4485-9C27-23EFDC64D165)

- \* 2021a *Parrasaurus yacahuitztli* Barrientos-Lara & Alvarado-Ortega, 2021a [LSID](https://zoobank.org/LSID) Barrientos-Lara & Alvarado-Ortega p 2 [La Caja Formation (upper Tithonian, Upper Jurassic, Jurassic); Rancho el Sombrero, Sierra de Parras, Saltillo Municipality, Coahuila, Mexico.] [URN:LSID:ZOOBANK.ORG:PUB:3C6D6D2B-6F30-4DF3AEB4-FD2B-C61B3CF7](https://zoobank.org/PUB:3C6D6D2B-6F30-4DF3AEB4-FD2B-C61B3CF7)

*Parvinatator wapitiensis* Nicholls & Brinkman, 1995

*Pervushovisaurus bannovkensis* Arkhangelsky, 1998

*Pervushovisaurus campylodon* (Carter, 1846)

- \* 1846 *Ichthyosaurus campylodon* Carter, 1846 Carter p 60 [Upper Greensand Formation (Albian–Cenomanian, Lower–Upper Cretaceous, Cretaceous); Cambridge, Cambridgeshire, U.K.]
- 1922 *Myopterygius campylodon* (Carter, 1846) von Huene p 98 [URN:LSID:ZOOBANK.ORG:PUB:2E316B82-8A25-43AE-A1C5-3785124EA6AE](https://zoobank.org/PUB:2E316B82-8A25-43AE-A1C5-3785124EA6AE)
- 1972 *Platypterygius campylodon* (Carter, 1846) McGowan p 17
- 2016 *Pervushovisaurus campylodon* (Carter, 1846) Fischer p 8

*Pessopteryx nisseri* Wiman, 1910

- \* 1910 *Pessopteryx nisseri* Wiman, 1910 Wiman p 139 [Lower Saurian Niveau, Vikinghøgda Formation, *Keyserlingites subrobustus* Ammonoid Biozone (Spathian, Lower Triassic, Triassic).]

*Phalarodon callawayi* Schmitz *et al.*, 2004

*Phalarodon fraasi* Merriam, 1910

*Phalarodon major* von Huene, 1916

*Phantomosaurus neubigi* (Sander, 1997)

*Platypterygius hercynicus* Kuhn, 1946

*Platypterygius americanus* Nace, 1939

- \* 1939 *Myopterygius americanus* Nace, 1939 Nace p 674 [Mowry Shale Member, Graneros Formation; Crook County Wyoming, U.S.A.]
- 1968 *Myopterygius americanus* Nace, 1939 Romer p 27 [Mowry Shale Member, Graneros Formation; Osage, Wyoming, U.S.A.]
- 1972 *Platypterygius americanus* (Nace, 1939) McGowan p 17

*Platypterygius australis* (M'Coy, 1867)

*Platypterygius hauthali* (von Huene, 1927)

*Platypterygius ochevi* Arkhangelsky *et al.*, 2008

*Platypterygius platydactylus* (Broili, 1907)

- 1922 *Platypterygius platydactylus* (Broili, 1907) von Huene p 99 [URN:LSID:ZOOBANK.ORG:PUB:2E316B82-8A25-43AE-A1C5-3785124EA6AE](https://zoobank.org/PUB:2E316B82-8A25-43AE-A1C5-3785124EA6AE)

*Protoichthyosaurus applebyi* Lomax *et al.*, 2017

*Protoichthyosaurus prostaxalis* Appleby, 1979

*Qianichthyosaurus xingyiensis* Yang *et al.*, 2013

*Qianichthyosaurus zhoui* Li, 1999

*Quasianosteosaurus vikinghoegdai* Maisch & Matzke, 2003

*Sclerocormus parviceps* Jiang *et al.*, 2016

*Shastasaurus alexandrae* Merriam, 1902

*Shastasaurus liangae* (Yin *et al.*, 2000)

*Shastasaurus pacificus* Merriam, 1895

*Shastasaurus sikkaniensis* (Nicholls & Manabe, 2004)

*Shonisaurus popularis* Camp, 1976

*Simbirskiasaurus birjukovi* Otschev & Efimov, 1985

*Sisteronia seeleyi* Fischer *et al.*, 2014a

*Stenopterygius aaleniensis* Maxwell *et al.*, 2012

*Stenopterygius quadriscissus* (Quenstedt, 1858)

*Stenopterygius triscissus* (Quenstedt, 1858)

*Stenopterygius uniter* von Huene, 1931b

*Suevoleviathan disinteger* (von Huene, 1926)

*Suevoleviathan integer* (Bronn, 1844)

*Sveltonectes insolitus* Fischer *et al.*, 2011

*Temnodontosaurus azerguensis* Martin *et al.*, 2012

*Temnodontosaurus crassimanus* (Blake, 1876)

*Temnodontosaurus eurycephalus* McGowan, 1974

*Temnodontosaurus nuertingensis* (von Huene, 1931a)

*Temnodontosaurus platyodon* (Conybeare, 1822)

*Temnodontosaurus trigonodon* (von Theodori, 1843)

*Thaisaurus chonglakmanii* Mazin *et al.*, 1991

*Thalassodraco etchesi* Jacobs & Martill, 2020

URN:LSID:ZOOBANK.ORG:ACT:35626449-D5AC-4970-B76E-27A827126D23

- v \* 2020 *Thalassodraco etchesi* Jacobs & Martill, 2020 LSID Jacobs & Martill p 7 [White Stone Band, Kimmeridge Clay Formation, *Pectinatites pectinatus* Ammonite Biozone (early Tithonian, Upper Jurassic, Jurassic); Rope Lake Bay, Kimmeridge, Dorset U.K.] URN:LSID:ZOOBANK.ORG:PUB:C1D99FF1-D4FC-4526-8E28-1B8FA64E21C0 UK GR SY932775

*Thalattoarchon saurophagis* Fröbisch *et al.*, 2013

*Tholodus schmidi* von Meyer, 1849

*Toretocnemus californicus* Merriam, 1903

*Toretocnemus zitteli* (Merriam, 1903)

*Undorosaurus gorodischensis* Efimov, 1999b

- \* 1999b *Undorosaurus gorodischensis* Efimov, 1999b Efimov p 52 [*Epivirgatites nikitini* Ammonite Biozone (Volgian, Upper Jurassic, Jurassic); Undory, Volga Oblast, Russia.]
- 2012 *Cryptopterygius kristiansenae* Druckenmiller *et al.*, 2012 LSID Druckenmiller *et al.* p 313 [Slottsmøya Member, Agardfjellet Formation (middle Volgian, Upper Jurassic, Jurassic); Janusfjellet, Spitsbergen, Svalbard (UTM WGS84 33X 0518842 8696067 = 78.3365801°N 15.8349207°E).] URN:LSID:ZOOBANK.ORG:PUB:8791DF9D-E15B-4470-A02A-F05ECC3BB7D6 *fide* Zverkov & Efimov (2019)
- 2019 *Undorosaurus gorodischensis* Efimov, 1999b Zverkov & Efimov p 1189

*Undorosaurus kielanae* (Tyborowski, 2016)

- \* 2016 *Cryptopterygius kielanae* Tyborowski, 2016 Tyborowski p 793 [Ślawno Limestone Member, Kcynia Formation (uppermost Lower Tithonian = Middle Volgian, Upper Jurassic, Jurassic); Owadów-Brzezinki Quarry, Ślawno (UTM WGS84 34U 439831 5692022 = 51.3762583 N 20.1355167 E).]
- ? 2019 *Undorosaurus kielanae* (Tyborowski, 2016) Zverkov & Efimov p 1187

*Undorosaurus nessovi* Efimov, 1999b

*Undorosaurus trautscholdi* Arkhangelsky & Zverkov, 2014

*Utatusaurus hataii* Shikama *et al.*, 1978

*Wahlisaurus massaræ* Lomax, 2016

- \* 2016 *Wahlisaurus massaræ* Lomax, 2016 Lomax p 388 [Barnstone Member?, Scunthorpe Mudstone Formation?, Pre-*planorbis* or *Psiloceras planorbis* beds (lowermost Hettangian, Lower Jurassic, Jurassic); Normanton Hills near Normanton on Soar, Nottinghamshire, U.K.]

*Wimanius odontopalatus* Maisch & Matzke, 1998a

*Xinminosaurus catactes* Jiang *et al.*, 2008

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