

# Ichthyosauromorph taxonomy

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ICHTHYOSAURIMORPHA Motani et al., 2015

HUPEHSUCHIA Carroll & Dong, 1991

*Eohupehsuchus brevicollis* Chen et al., 2014b

\* 2014b *Eohupehsuchus brevicollis* Chen et al.

p 4 [Jialingjiang Formation (Upper Spathian, Lower Triassic); Yangping, Yuan'an County, Hubei Province, China].

*Eretmorhipis carrolldongi* Chen et al., 2015

1991 *Hupehsuchia* n. g., n. s.

p 143 [Jialingjiang Formation (Upper Spathian, Lower Triassic); Tuling, Baihechuan, Xunjian District, Nanzhang County, Hubei Province, China].

\* 2015 *Eretmorhipis carrolldongi* Chen et al.

p 4 [Jialingjiang Formation (Upper Spathian, Lower Triassic); Yingzhishang, Yuan'an County, Hubei Province, China].

*Hupehsuchus nanchangensis* Young & Dong, 1972

*Nanchangosaurus suni* Wang, 1959

*Parahupehsuchus longus* Chen et al., 2014a

ICHTHYOSAURIFORMES Motani et al., 2015

*Acamptonectes densus* Fischer et al., 2012

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

Fischer et al., p 3 [Speeton Clay Formation, *Simbiskites concinnus/staffi* ammonite biozones (basal-upper Hauterivian, Lower Cretaceous, Cretaceous); Speeton, Yorkshire, U.K. and Cremlingen, Lower Saxony, Germany].

*Aegirosaurus leptospondylus* (Wagner, 1853)

\* 1853 *Ichthyosaurus leptospondylus* Wagner, 1853

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

2000 *Aegirosaurus leptospondylus* (Wagner, 1853)

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

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

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

Barrientos-Lara et al., p 3 [La Casita Formation (Kimmeridgian, Upper Jurassic, Jurassic); Cerro de Palotes, near of Cuencamé, Durango state, Northeast Mexico.]

*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 [Slotsmøya Member, Agardfjellet Formation (early Berriasian, Lower Cretaceous, Cretaceous); Janusfjellet, Spitsbergen, Svalbard (UTM WGS84 33X 0518847 8696044).] *fide* Zverkov and Prilepskaya (2019)

p 2018 *Palvennia hoybergeti* Druckenmiller et al., 2012

Delsett et al., p 8 [UTM WGS84 33X 0519622 8695649] PMO 222.669 *fide* Zverkov and Prilepskaya (2019)

2019 *Arthropterygius chrisorum* (Russell, 1993) Zverkov and Prilepskaya, p 15

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

- \* 2012 *Palvennia hoybergeti* Druckenmiller et al., 2012 Druckenmiller et al., p 326 [Slottsmøya Member, Agardfjellet Formation (Middle Volgian, Upper Jurassic, Jurassic); Spitsbergen, Svalbard (UTM WGS84 33X 0518775 8696150).]
- p 2018 *Palvennia hoybergeti* Druckenmiller et al., 2012 Delsett et al., p 8 [UTM WGS84 33X 0519622 8695649]
- 2019 *Arthropterygius hoybergeti* (Druckenmiller et al., 2012) Zverkov and Prilepskaya, p 31

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

- \* 2014 *Janusaurus lundii* Roberts et al., 2014 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).] *fide* Zverkov and Prilepskaya (2019)
- 2016 *Janusaurus lundii* Roberts et al., 2014 Delsett et al., p
- 2017 *Janusaurus lundii* Roberts et al., 2014 Delsett et al., p
- 2019 *Arthropterygius lundii* (Roberts et al., 2014) Zverkov and Prilepskaya, p 40

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

- v \* 2010 *Athabascasaurus bitumineus* Druckenmiller and Maxwell, 2010 Druckenmiller and 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).]

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

- \* 2006 *Mixosaurus panxianensis* Jiang et al., 2006 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.]
- 2010 *Barracudasauroides panxianensis* (Maisch, 2010) Maisch, p 161

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

- \* 1996 *Besanosaurus leptorhynchus* Dal Sasso and Pinna, 1996 Dal Sasso and Pinna, p 4 [Besano Formation, *Nevadites secedensis* Ammonite Biozone (Ilyrian, Anisian, Middle Triassic, Triassic); Sasso Caldo quarry, Besano, Varese Province, Lombardy, Northern Italy.]

### *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)

- v \* 1904 *Ichthyosaurus extremus* Boulenger, 1904 Boulenger, p 425 [Kimmeridge Clay Formation (Kimmeridgian-Tithonian, Upper Jurassic, Jurassic); Smallmouth Sands, Weymouth, Dorset, U.K..]
- v 1922 *Brachypterygius extremus* (Boulenger, 1904) von Huene, p 97
- 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).]

### *Brachypterygius pseudoscythica* (Efimov, 1998)

- \* 1998 *Otschevia pseudoscythica* Efimov, 1998 Efimov, p 83 [*Illovaishya pseudoscythica* Ammonite Biozone (Volgian, Upper Jurassic, Jurassic); Volga River, Ulyanovsk District, Ulyanovsk Region, Russia.]
- 2000 *Brachypterygius pseudoscythius* (Efimov, 1998) [sic.] Maisch and Matzke, p 79

2015 *Grendelius pseudoscythicus* (Efimov, 1998) Zverkov et al., p 561  
[sic.]

*Californosaurus perrini* (Merriam, 1902)

- \* 1902 *Shastasaurus perrini* Merriam, 1902 Merriam, p 89 [Hossekus 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* 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 and Matzke, p 69 New combination takes priority over *Metashastasaurus* (Nicholls and Manabe, 2001, p. 1001).
- 2001 *Metashastasaurus neoscapularis* (McGowan, 1994) Nicholls and Manabe, p 985 [Pardonet Formation (Norian, Upper Triassic, Triassic); Chicken Creek, British Columbia, Canada.]

*Cartorhynchus lenticarpus* Motani et al., 2015

*Caypullisaurus bonapartei* Fernández, 1997

*Cetarthrosaurus walkeri* Seeley, 1873

*Chacaicosaurus cayi* Fernández, 1994

*Chaohusaurus chaoxianensis* (Chen, 1985)

*Chaohusaurus geishanensis* Young and Dong, 1972

*Chaohusaurus zhangjiawanensis* Chen et al., 2013

*Contectopalatus atavus* (Quenstedt, 1852)

*Cymbospondylus buchseri* Sander, 1989

*Cymbospondylus nichollsi* Fröbisch et al., 2006

*Cymbospondylus petrinus* Leidy, 1868

*Cymbospondylus piscosus?* Leidy, 1868

*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 typicus* Maisch, 2008

*Himalayasaurus tibetensis* Young and Dong, 1972

*Hudsonelpidia brevirostris* McGowan, 1995

*Ichthyosaurus acutirostris* Owen, 1840

*Ichthyosaurus anningae* Lomax and Massare, 2015

*Ichthyosaurus breviceps* Owen, 1881

*Ichthyosaurus communis* Conybeare, 1822

*Ichthyosaurus conybeari* Lydekker, 1888

*Ichthyosaurus larkini* Lomax and Massare, 2017

*Ichthyosaurus somersetensis* Lomax and Massare, 2017

*Isfjordosaurus minor* (Wiman, 1910)

*Leninia stellans* Fischer et al., 2014a

*Leptonectes moorei* McGowan and Milner, 1999

*Leptonectes solei* (McGowan, 1993)

*Leptonectes tenuirostris* (Conybeare, 1822)

*Macgowania janiceps* (McGowan, 1996)

*Maiaspondylus lindoei* Maxwell and Caldwell, 2006

*Malawania anachronus* Fischer et al., 2013

*Mikadocephalus gracilirostris* Maisch and Matzke, 1997

*Mixosaurus cornalianus* (Bassani, 1886)

*Mixosaurus kuhnschneyderi* (Brinkmann, 1998)

*Mixosaurus xindianensis* Chen and 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 = 05° 34.278' N 73° 31.781' W).]

*Nannopterygius enthekiodon* (Hulke, 1871)

*Nannopterygius saveljeviensis* (Arkhangelsky, 1997)

\* 1997 *Paraophthalmosaurus savejeviensis*  
Arkhangelsky, 1997

Arkhangelsky, p 88

\* 1999b *Yasykovia kabanovi* Efimov, 1999b  
2020 *Nannopterygius savejeviensis* (Arkhangelsky,  
1997)

Efimov, p 98

Zverkov and Jacobs, p 246 [Volgian, Upper Jurassic, Jurassic.]

*Nannopterygius yasykovi* (Efimov, 1999b)

\* 1999b *Yasykovia sumini* Efimov, 1999b

Efimov, p 98

*Ophthalmosaurus icenicus* Seeley, 1874

v \* 1874 *Ophthalmosaurus icenicus* Seeley, 1874

Seeley, p 707 [Peterborough Member, Oxford Clay Formation (Callovian, Middle Jurassic, Jurassic); Peterborough, Cambridgeshire.]

*Ophthalmosaurus natans* (Marsh, 1879)

*Parvinatator wapitiensis* Nicholls and Brinkman, 1995

*Pervushovisaurus bannovkensis* Arkhangelsky, 1998

*Pervushovisaurus campylodon* (Carter, 1846)

- |                                                                                                                                                                                                                                                |                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>* 1846 <i>Ichthyosaurus campylodon</i> Carter, 1846</p> <p>1922 <i>Myopterygius campylodon</i> (Carter, 1846)</p> <p>1972 <i>Platypterygius campylodon</i> (Carter, 1846)</p> <p>2016 <i>Pervushovisaurus campylodon</i> (Carter, 1846)</p> | <p>Carter, p 60 [Upper Greensand Formation (Albian–Cenomanian, Lower–Upper Cretaceous, Cretaceous); Cambridge, Cambridgeshire, U.K..]</p> <p>von Huene, p 98</p> <p>McGowan, p 17</p> <p>Fischer, p 8</p> |
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*Pessopteryx nisseri* Wiman, 1910

*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

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

*Platypterygius australis* (M'Coy, 1867)

*Platypterygius hauthali* (von Huene, 1927)

*Platypterygius ochevi* Arkhangelsky et al., 2008

*Platypterygius platydactylus* (Broili, 1907)

*Platypterygius sachicarum* Páramo, 1997

*Protoichthyosaurus applebyi* Lomax et al., 2017

*Protoichthyosaurus prosaxalis* Appleby, 1979

*Qianichthyosaurus xingyiensis* Yang et al., 2013

*Qianichthyosaurus zhoui* Li, 1999

*Quasianosteosaurus vikinghoegdai* Maisch and 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 and Manabe, 2004)

*Shonisaurus popularis* Camp, 1976

*Simbirskiasaurus birjukovi* Otschev and Efimov, 1985

*Sisteronia seeleyi* Fischer et al., 2014b

*Stenopterygius aaleniensis* Maxwell et al., 2012

*Stenopterygius quadriscissus* (Quenstedt, 1858)

*Platypterygius australis*–*Stenopterygius quadriscissus*

*Stenopterygius triscissus* (Quenstedt, 1858)

*Stenopterygius uniter* von Huene, 1931a

*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, 1931b)

*Temnodontosaurus platyodon* (Conybeare, 1822)

*Temnodontosaurus trigonus* (von Theodori, 1843)

*Thaisaurus chonglakmanii* Mazin et al., 1991

*Thalattoarchon saurophagis* Fröbisch et al., 2013

*Tholodus schmidi* von Meyer, 1849

*Toretocnemus californicus* Merriam, 1903

*Toretocnemus zitteli* (Merriam, 1903)

*Undorosaurus gorodischensis* Efimov, 1999a

- \* 1999a *Undorosaurus gorodischensis* Efimov, 1999a Efimov, p 52 [*Epivirgatites nikitini* Ammonite Biozone (Volgian, Upper Jurassic, Jurassic); Undory, Volga Oblast, Russia.]
- 2012 *Cryptopterygius kristiansenae* Druckenmiller et al., 2012 Druckenmiller et al., p 313 [Slottsmøya Member, Agardfjellet Formation (middle Volgian, Upper Jurassic, Jurassic); Janusfjellet, Spitsbergen, Svalbard (UTM WGS84 33X 0518842 8696067).] fide Zverkov and Efimov (2019)
- 2019 *Undorosaurus gorodischensis* Efimov, 1999a Zverkov and Efimov, p 1189

*Undorosaurus kielanae* (Tyborowski, 2016)

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

*Undorosaurus nessovi* Efimov, 1999a

*Undorosaurus trautscholdi* Arkhangelsky and Zverkov, 2014

*Utatusaurus hataii* Shikama et al., 1978

*Wahlisaurus massarae* Lomax, 2016

- \* 2016 *Wahlisaurus massarae* 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 and Matzke, 1998

*Xinminosaurus catactes* Jiang et al., 2008



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