

# Supplementary information

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**1.**

**Descriptive matrix of reviewed and new species**

**Matrice descriptive des espèces redécrites et nouvelles.**





**2.**

**List of all known species of polychelidan lobsters, including those in open nomenclature, *nomina dubia* and *nomina nuda*.**

**Liste de l'ensemble des espèces de polychelida, incluant celles en nomenclature ouverte, les *nomina dubia* et *nomina nuda*.**

Family / Subfamily	Genus	Species	Authorship	Age	Country	References
Eryonidae	<i>Eryon</i>	<i>cuvieri</i>	Desmarest, 1817	Tithonian	Germany	Charbonnier <i>et al.</i> (2012)
Eryonidae	<i>Eryon</i>	<i>ellipticus</i>	Van Straelen, 1923	Callovian	France	Audo <i>et al.</i> (2014c)
Eryonidae	<i>Eryon</i>	<i>sublevis</i>	Carter, 1886	Oxfordian	England	Woods (1925)
Eryonidae	<i>Eryon</i>	<i>sibiricus</i>	(Chernyshev, 1930)	Toarcian?	Russia (Siberia)	Audo (2014)
Eryonidae	<i>Voulteryon</i>	<i>parvulus</i>	Audo <i>et al.</i> 2014c	Callovian	France	Audo <i>et al.</i> (2014c)
Eryonidae	<i>Cycleryon</i>	<i>bourseaui</i>	Audo <i>et al.</i> 2014a	Kimmeridgian-Tithonian	France	Audo <i>et al.</i> (2014a)
Eryonidae	<i>Cycleryon</i>	<i>elongatus</i>	(Münster, 1839)	Tithonian	Germany	Garassino & Schweigert (2006)
Eryonidae	<i>Cycleryon</i>	<i>orbiculatus</i>	(Münster, 1839)	Kimmeridgian-Tithonian	Germany	Garassino & Schweigert (2006)
Eryonidae	<i>Cycleryon</i>	<i>propinquus</i>	(Schlothheim, 1822)	Kimmeridgian-Tithonian	Germany	Garassino & Schweigert (2006)
Eryonidae	<i>Cycleryon</i>	<i>wulfi</i>	Garassino & Schweiger, 2004	Kimmeridgian-Tithonian	Germany	Garassino & Schweigert (2006)
Eryonidae	<i>Soleryon</i>	<i>amicalis</i>	Audo <i>et al.</i> 2014a	Kimmeridgian-Tithonian	France	Audo <i>et al.</i> (2014a)
Eryonidae	? <i>Soleryon</i>	<i>giganteus</i>	(Van Straelen, 1923)	Callovian	France	Audo <i>et al.</i> (2014c)
Eryonidae	<i>Soleryon</i>	<i>perroni</i>	(Étallon, 1859)	Oxfordian	France	Audo <i>et al.</i> (2014a)
Eryonidae	<i>Soleryon</i>	<i>schorri</i>	Audo <i>et al.</i> 2014a	Kimmeridgian	Germany	Audo <i>et al.</i> (2014a)
Eryonidae	<i>knebelia</i>	<i>bilobata</i>	(Münster, 1839)	Tithonian	Germany	Audo <i>et al.</i> (2014b)
Eryonidae	<i>knebelia</i>	<i>schuberti</i>	(Meyer, 1836)	Tithonian	Germany	Audo <i>et al.</i> (2014b)
Eryonidae	<i>Knebelia</i>	<i>totoroi</i>	Audo <i>et al.</i> 2014b	Kimmeridgian-Tithonian	Germany	Audo <i>et al.</i> (2014b)
Eryonidae	<i>Stonesfielderyon</i>	<i>imitator</i>	nov. sp	Bathonian	United Kingdom	Present work
Palaeopentachelidae	<i>Palaeopentacheles</i>	<i>roettenbacheri</i>	(Münster, 1839)	Kimmeridgian-Tithonian	Germany	Garassino & Schweigert (2006)
Coleiidae, Tetrachelinae	<i>Tetrachela</i>	<i>raiblana</i>	(Bronn, 1858)	Carnian	Italy, Austria	Audo <i>et al.</i> (2018)
Coleiidae	<i>Coleia</i>	<i>antiqua</i>	Broderip, 1835	Sinemurian	United Kingdom	Woods (1925)
Coleiidae	<i>Coleia</i>	<i>appenninica</i>	(Garassino <i>et al.</i> 2012)	Lower Cretaceous	Italy	Garassino <i>et al.</i> (2012)
Coleiidae	<i>Coleia</i>	<i>barrovensis</i>	(M'Coy, 1849)	Rhaetian-Hettangian	United Kingdom	Woods (1925)
Coleiidae	<i>Coleia</i>	<i>boboi</i>	Garassino & Gironi, 2006	Rhaetian	Italy	Garassino & Gironi, 2006
Coleiidae	<i>Coleia</i>	<i>bredonensis</i>	Woods, 1925	Sinemurian	United Kingdom	Woods (1925)
Coleiidae	<i>Coleia</i>	<i>brodiei</i>	(Woodward, 1866)	Sinemurian-Pliensbachian	United Kingdom-Germany	Woods (1925)
Coleiidae	<i>Coleia</i>	<i>crassichelis</i>	(Woodward, 1866)	Sinemurian	United Kingdom	Woods (1925)
Coleiidae	<i>Coleia</i>	<i>escheri</i>	(Oppel, 1862)	Sinemurian	Switzerland	Audo (2014)
Coleiidae	<i>Coleia</i>	<i>martinlutheri</i>	Schweigert & Ernst, 2012	Sinemurian	Germany	Schweigert & Ernst (2012)
Coleiidae	<i>Coleia</i>	<i>mediterranea</i>	Pinna, 1968	Sinemurian	Italy	Garassino & Teruzzi 2015
Coleiidae	<i>Coleia</i>	<i>pinnai</i>	Teruzzi, 1990	Sinemurian	Italy	Garassino & Teruzzi 2015
Coleiidae	<i>Coleia</i>	<i>poypei</i>	Teruzzi, 1990	Sinemurian	Italy	Garassino & Teruzzi 2015

Coleiidae	<i>Coleia</i>	<i>viallii</i>	Pinna, 1968	Sinemurian	Italy	Garassino & Teruzzi 2015
Coleiidae	<i>Coleia</i>	<i>tenuichelis</i>	Woods, 1925	Sinemurian	United Kingdom	Woods (1925)
Coleiidae	<i>Coleia</i>	<i>uzume</i>	Karasawa <i>et al.</i> 2003	Carnian	Japan	Karasawa <i>et al.</i> (2003)
Coleiidae	<i>Pseudocoleia</i>	<i>mazzolenii</i>	Garassino & Teruzzi, 1993	Norian-Rhaetian	Italy	Garassino & Teruzzi (1993)
<i>Coleiidae, Proeryoninae</i>	<i>Proeryon</i>	<i>charbonnieri</i>	Audo & Schweigert, 2018	Callovian	France	Audo & Schweigert (2018)
<i>Coleiidae, Proeryoninae</i>	? <i>Proeryon</i>	<i>erinaceus</i>	nov. sp	Oxfordian	France	Present work
<i>Coleiidae, Proeryoninae</i>	<i>Proeryon</i>	<i>giganteus</i>	Beurlen, 1930	Toarcian	Germany	Present work
<i>Coleiidae, Proeryoninae</i>	<i>Proeryon</i>	<i>hartmanni</i>	(Meyer, 1836)	Toarcian	Germany, France, Russia	Present work
<i>Coleiidae, Proeryoninae</i>	<i>Proeryon</i>	<i>hauffi</i>	Beurlen, 1944	Toarcian	Germany	Present work
<i>Coleiidae, Proeryoninae</i>	<i>Proeryon</i>	<i>laticaudatus</i>	Beurlen, 1928	Toarcian	Germany	Present work
<i>Coleiidae, Proeryoninae</i>	? <i>Proeryon</i>	<i>quiltyi</i>	nov. sp	Callovian?	Antarctica	Quilty (1988), Present work
<i>Coleiidae, Proeryoninae</i>	<i>Proeryon</i>	<i>richardsoni</i>	(Woodward, 1911)	Pliensbachian	United Kingdom	Present work
<i>Coleiidae, Proeryoninae</i>	<i>Proeryon</i>	<i>stoddarti</i>	(Woodward, 1881)	Bathonian	United Kingdom	Present work
<i>Coleiidae, Proeryoninae</i>	<i>Proeryon</i>	sp.1		Neocomian	Switzerland	Present work
<i>Coleiidae, Proeryoninae</i>	<i>Proeryon</i>	sp.2		Hauterivian	Germany	Present work
<i>Coleiidae, Proeryoninae</i>	<i>Tethyseryon</i>	<i>campanicus</i>	Bravi <i>et al.</i> 2014	Bajocian-Bathonian	Italy	Bravi <i>et al.</i> (2014)
<i>Coleiidae, Proeryoninae</i>	<i>Gabaleryon</i>	<i>coquelae</i>	Audo <i>et al.</i> 2017	Toarcian	France	Audo <i>et al.</i> (2017b)
<i>Coleiidae, Proeryoninae</i>	<i>Gabaleryon</i>	<i>garassinoi</i>	Audo <i>et al.</i> 2017	Toarcian	Italy	Audo <i>et al.</i> (2017b)
<i>Coleiidae, Proeryoninae</i>	<i>Gabaleryon</i>	<i>moorei</i>	(Woodward, 1866)	Toarcian	United Kingdom	Audo <i>et al.</i> (2017b)
<i>Coleiidae, Proeryoninae</i>	<i>Gabaleryon</i>	sp.1		Toarcian	Germany	Audo <i>et al.</i> (2017b)
<i>Coleiidae, Proeryoninae</i>	? <i>Gabaleryon</i>	sp.2		Bajocian-Bathonian	France	Audo <i>et al.</i> (2017b)
Coleiidae	<i>Willemoesiocaris</i>	<i>ovalis</i>	(Van Straelen, 1923)	Callovian	France	Audo <i>et al.</i> (2014c)
Coleiidae	<i>Palaeopolycheles</i>	<i>longipes</i>	(Fraas, 1855)	Kimmeridgian	Germany	Audo <i>et al.</i> (2014c)
Polychelidae	<i>Antarcticheles</i>	<i>antarcticus</i>	Aguirre-Urreta <i>et al.</i> 1990	Late Jurassic	Antarctica	Aguirre-Urreta <i>et al.</i> (1990)
Polychelidae	<i>Tauricheles</i>	<i>crymensis</i>	(Levitski, 1974)	Toarcian-Aalenian	Ukraine	Audo <i>et al.</i> (in press)
Polychelidae	<i>Woodwardicheles</i>	<i>neocomiensis</i>	(Woodward, 1881)	Early Cretaceous	Czech Republic	Audo <i>et al.</i> (in press)
Uncertain	<i>Adamanteryon</i>	<i>fourneti</i>	Audo <i>et al.</i> 2014c	Callovian	France	Audo <i>et al.</i> (2014c)
Uncertain	<i>Rogeryon</i>	<i>oppeli</i>	(Woodward, 1866)	Tithonian	Germany	Audo <i>et al.</i> (2017a)
Uncertain	<i>Rosenfeldia</i>	<i>triasica</i>	Garassino <i>et al.</i> 1996	Norian	Italy	Audo <i>et al.</i> (2017a)
Uncertain	<i>Tonneleryon</i>	<i>schweigerti</i>	Audo, 2016	Toarcian	Germany	Audo (2016)
Uncertain	<i>Tropifer</i>	<i>laevis</i>	Gould, 1857	Rhaetian	United Kingdom	Woods (1925)
Uncertain	<i>Wrangelleryon</i>	<i>perrates</i>	Feldmann <i>et al.</i> 2013	Hettangian	Canada	Feldmann <i>et al.</i> (2013)
Uncertain	Unknown	undescribed		Toarcian	Canada	Martindale <i>et al.</i> (2017)

Nomen dubium	<i>Coleia</i>	<i>sinuata</i>	Beurlen, 1928	Toarcian	Germany	Audo (2016)
Nomen dubium	<i>Coleia</i>	<i>theodori</i>	Kuhn, 1952	Toarcian?	Germany	Audo (2014)
Nomen nudum	<i>Eryon</i>	<i>acutus</i>	Germar, 1827	Kimmeridgian-Tithonian	Germany	Audo (2014)
Nomen nudum	<i>Eryon</i>	<i>muticus</i>	Germar, 1827	Kimmeridgian-Tithonian	Germany	Audo (2014)