

Supplement to: 'How many species of fossil holothurians are there?'

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My 'How many species of fossil holothurians are there?' checklist covered all published fossil holothurian names through 01 June 2012. This supplement includes new fossil species (7) described through 01 August 2013, a few addenda missing (4), and correction of errors discovered in the original. With these additions, I number the named fossil sea cucumber species of the world at 959 species/paraspecies. The need for more study of fossil holothurians is again demonstrated by the fact that large areas worldwide, e.g. Africa, Asia, Australia, South America, still remain unstudied.

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Introduction

'How many species of fossil holothurians are there?' (Reich 2013) covered all published fossil holothurian names described through 01 June 2012. In this supplement I correct errors discovered in the my check list (Reich 2013), list 7 new fossil species described since, and include also 3 nomina nova and 1 ?manuscript name missing in Reich (2013).

Taxa described since the last checklist

The detailed list includes the species, original genus, author(s), type stratum and locality. A few fossil species are designated in part as follows: * sclerite assemblage, ** body fossil, *** non-Holothuroidea or very probably non-Holothuroidea (Reich 2013: 32-51). The numbering of species/paraspecies from Reich (2013) is continued here.

Correction

45. *annulata* Giebel, 1857**/**; *Protholoturia*¹ [Jurassic: Lower Tithonian; Germany]
61. *armata* Giebel, 1857**/**; *Protholoturia*¹ [Jurassic: Lower Tithonian; Germany]
380. *ingridae* Mostler in Krainer et al., 1994; *Neomicroantyx* [Jurassic: Toarcian; Austria]

¹ = *Protholothuria* Giebel nom. correct. Giebel 1866: 36 (pro *Protholoturia* Giebel, 1857)

Addendum

949. *catalonica* Reich in Reich & Ansorge, 2014; *Eorynka-torpa* [Cretaceous: Santonian; Spain]
950. *frankwiesei* Reich, 2012; *Palaeolaetmogone* [Cretaceous: Turonian; Poland]
951. *jaumei* Reich in Reich & Ansorge, 2014; *Eolepto-synapta* [Cretaceous: Santonian; Spain]
952. *latifolia* Mostler, 1972; *Protocaudina* [Jurassic; other details unknown]
953. *mesozoica* Reich in Reich & Ansorge, 2014; *Cruxopadia* [Jurassic: Oxfordian; France]
954. *oloughlini* Reich, 2012; *Priscolaetmogone* [Cretaceous: Maastrichtian; Germany/Baltic Sea]
955. *reitneri* Reich in Reich & Ansorge, 2014; *Cruxopadia* [Cretaceous: Santonian; Spain]
956. *rioulti* Smirnov, 1989; *Croneisites?* [Paleogene: Eocene: Lutetian; France]
957. *rugia* Reich, 2012; *Palaeocaudina* [Cretaceous: Maastrichtian; Germany]
958. *sadeddini* Reich, 2003; *Calcligula* [Cretaceous: Albian; U.S.A.: Texas]
959. *saidi* Reich, 2003; *Calcligula* [Jurassic: Bajocian; Egypt]

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References

- Giebel, C. [G. A.] (1857): Zur Fauna des lithographischen Schiefers von Solenhofen. *Zeitschrift für die Gesamten Naturwissenschaften* **9**: 373-388.
- Giebel, C. [G. A.] (1866): *Repertorium zu Goldfuss' Petrefakten Deutschlands. Ein Verzeichniss aller Synonymen und literarischen Nachweise zu den von Goldfuss abgebildeten Arten*. Leipzig (List & Francke): iv + 122 pp.
- Krainer, K.; Mostler, H. & Haditsch, J. G. (1994): Jurassische Beckenbildung in den Nördlichen Kalkalpen bei Lofer (Salzburg) unter besonderer Berücksichtigung der Manganerz-Genese. In: Festschrift zum 60. Geburtstag von Erik Flügel. *Abhandlungen der Geologischen Bundesanstalt in Wien* **50**: 257-293.
- Mostler, H. (1972): Holothuriensklerite aus dem Jura der Nördlichen Kalkalpen und Südtiroler Dolomiten. *Geologisch-Paläontologische Mitteilungen Innsbruck* **2** (6): 1-29.
- Reich, M. (2003): Holothurien (Echinodermata) aus der Oberkreide des Ostseeraumes: Teil 5. Molpadiidae J. Müller, 1850. *Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen* **229** (2): 231-253.
- Reich, M. (2012): On Mesozoic laetmogonid sea cucumbers (Echinodermata: Holothuroidea: Elaspodida). In: Kroh, A. & Reich, M. (eds.): *Echinoderm Research 2010: Proceedings of the Seventh European Conference on Echinoderms*, Göttingen, Germany, 2-9 October 2010. *Zoosymposia* **7**: 185-212.
- Reich, M. (2013): How many species of fossil holothurians are there? In: Johnson, C. (ed.): *Echinoderms in a Changing World. Proceedings of the 13th International Echinoderm Conference, University of Tasmania, Hobart Tasmania, Australia, 5-9 January 2009*. Boca Raton / London / New York / Leiden (CRC Press, Taylor & Francis Group): 23-51. <http://dx.doi.org/10.1201/b13769-5>
- Reich, M. & Ansorge, J. (2014): Santonian sea cucumbers (Echinodermata: Holothuroidea) from Sierra del Montsec, Spain. In: Wiese, F.; Reich, M. & Arp, G. (eds.): "Spongy, slimy, cosy & more..." Commemorative volume in celebration of the 60th birthday of Professor Joachim Reitner. *Göttingen Contributions to Geosciences* **77**: 147-160. <http://dx.doi.org/10.3249/webdoc-3926>
- [Smirnov, A. V.] Смирнов, А. В. (1989): Соотношение систем ископаемых и современных голотурий семейства Synaptidae. [Sootnošenie sistem iskopajemyh i sovremennyh goloturij semejstva Synaptidae; Coordination of modern and fossil synaptid holothurians.]. In: Кальо, Д. Л. [Kal'о, D. L.] (ed.): *Проблемы изучения ископаемых и современных иглокожих. [Problemy izučeniä iskopajemyh i sovremennyh iglokožih; Fossil and Recent Echinoderm Researches.]*. Таллинн [Tallinn] (Академия наук Эстонской ССР [Akademii nauk Èstonskoj SSR]): 203-217.

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