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A new Chilodontidae Wenz, 1938 (Mollusca Gastropoda) from the Mediterranean Sea: *Putzeysia reticulata* n. sp. with notes on the species of the genus

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ABSTRACT *Putzeysia reticulata* n. sp. is described from the Mediterranean Sea. It belongs to a small group of morphologically similar species, which has been recently enriched in number of taxa. The new species is compared with the other members of Chilodontidae Wenz, 1938: i.e. *P. wiseri* (Calcara, 1842), *P. clathrata* (Aradas, 1847), *P. cillisi* Segers, Swinnen et De Prins, 2009, *P. franziskae* Engl et Rolán, 2009, *P. juttae* Engl et Rolán, 2009, *P. rickyi* Reitano et Scuderi, 2021, *P. diversii* Kiel, Sami et Taviani, 2023. The members of this group are discussed according to the most recent literature.

KEY WORDS Chilodontidae; Recent; *Putzeysia reticulata* n. sp.; Mediterranean Sea.

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INTRODUCTION

The genus *Putzeysia* Sulliotti, 1889 includes a small group of trochoidean gastropods (Chilodontidae Wenz, 1938), its type species is the fossil *P. clathrata* (Aradas, 1847), described from the Pliocene/Pleistocene sandy marl deposits of Gravitelli, Messina (Sicily, Italy).

Recently, several morphologically similar species belonging to this genus have been described for European waters and fossiliferous deposits (Reitano & Scuderi, 2021; Reitano et al., 2022; Kiel et al., 2023), and currently this group is composed of seven taxa; two fossil species, *P. clathrata* (Aradas, 1847) and *P. diversii* Kiel, Sami et Taviani, 2023, and five Recent ones: *P. wiseri* (Calcara, 1842), from North-Eastern Atlantic and the Mediterranean; *P. franziskae* Engl et Rolan, 2009 and *P. juttae* Engl et Rolán, 2009, from Canary Islands (Spain); *P. cillisi* Segers, Swinnen et De Prins, 2009, from Madeira Island (Portugal) and Canary Islands (Spain); *P. rickyi* Reitano et Scuderi, 2021, from the Mediterranean Sea.

In this work, based on shell morphology, a new species of the genus *Putzeysia* is described. These shells were found off the coast of Latium (Italy), Central Tyrrhenian Sea and all fossil and Recent species ascribed to this genus are compared with the new taxon and discussed.

MATERIAL AND METHODS

The sediment, where the shells of the new species were found, have been dredged at 540 m depth, off Latium coast (Italy), Central Tyrrhenian Sea.

Sorting and identification of this new species of the genus *Putzeysia* have been carried out by using stereomicroscopes. Optical photographs have been taken with a Nikon D3300 digital camera mounted on a Carl Zeiss 475052 stereomicroscope.

Five living specimens of *P. wiseri*, collected sympatrically with the new species, were preserved in 95% ethanol as reference material for future molecular studies.

Current systematics is based on the World Register of Marine Species (WoRMS, 2026).

ABBREVIATIONS AND ACRONYMS. CS–PM, Carlo Smriglio-Paolo Mariottini collection, Rome, Italy; H, Height; lv, live collected specimen(s); MCZR, Museo Civico di Zoologia, Rome, Italy; MMF, Natural History Museum of Funchal, Madeira, Portugal; MSF, Museo Civico di Scienze Naturali, Faenza, Italy; MNHNCL, Museo Nacional de Historia Natural, Santiago, Chile; MSNC, Museo di Storia Naturale di Comiso, Italy; MTS, Monterosato collection; SEM, Scanning Electron Microscopy; sh/shs, empty shell(s); W, shell width; H, shell height.

MATERIAL EXAMINED. *Putzeysia wiseri*: ITALY ● 58 shs and 5 lv; Central Tyrrhenian Sea, off Latium coast; 500/560 m depth; CS-PM ● 4 shs; Sardinia, La Maddalena Island, 700 m depth.

"*Trochus*": ITALY ● 1 sh; Mediterranean Sea; MTS, MCZR-M-30097.

Trochus gemmulatus Philippi, 1844: ITALY ● 4 shs; MTS ex Seguenza collection, MCZR-M-11271 ● 3 shs; Messina, Sicily, Pliocene; MTS ex Brugnone collection, MCZR-M-11721.

Trochus gemmulatus Conti: ITALY ● 1 sh juvenis; Rome, Monte Mario; MTS ex Brugnone collection, MCZR-M-11271.

Trochus clathratus Aradas, 1847: ITALY ● 2 shs; Sicily, Messina; MTS ex Seguenza collection, MCZR-M-11273.

Putzeysia franziskae Engl et Rolán, 2009: CANARY ISLANDS ● 1 sh; Lanzarote, Puerto del Carmen; 46–50 m depth; legit Winfried Engl; topotype, CS-PM.

Putzeysia juttae Engl et Rolán, 2009: CANARY ISLANDS ● 1 sh; Lanzarote, Puerto del Carmen; 46–50 m depth; legit Winfried Engl; topotype, CS-PM.

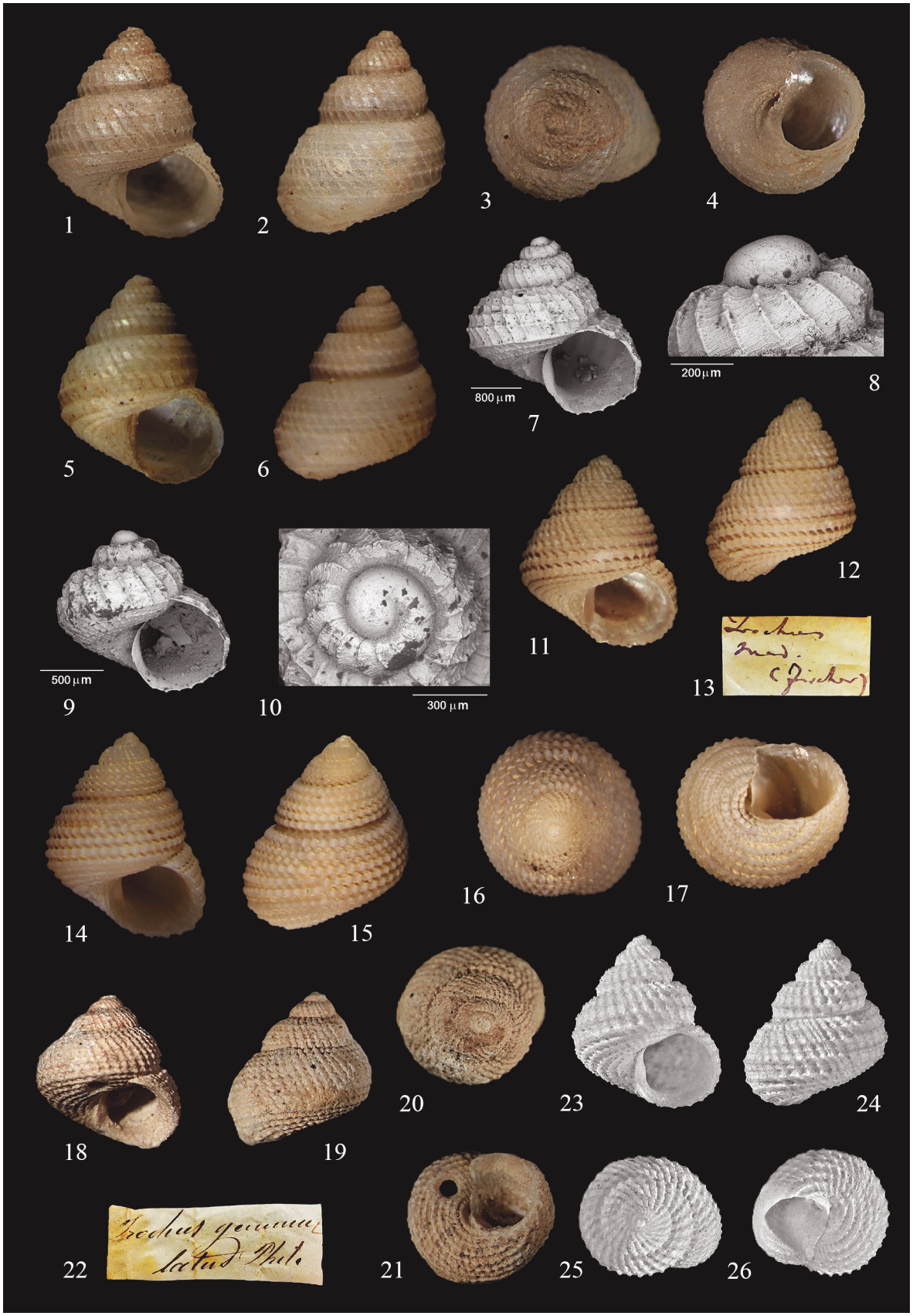
The use of unpublished names (as e.g., those reported in museum labels), is only for the purpose of easier tracking of the samples, and is hence not intended to introduce those names, and should not be considered as a deliberate introduction of new names (ICZN 1999: art. 8.3).

RESULTS

Systematics

Classis GASTROPODA Cuvier, 1795
Subclassis VETIGASTROPODA Salvini-Plawen, 1980
Ordo SEGUENZIIDA Haszprunar, 1986
Superfamilia SEGUENZIOIDEA Verrill, 1884
Familia CHILODONTIDAE Wenz, 1938
Genus *Putzeysia* Sulliotti, 1889
Type species: *Trochus clathratus* Aradas, 1847 (type by monotypy)

Figures 1–10. *Putzeysia reticulata* n. sp. Figs. 1–4: holotype, frontal, dorsal, apical and basal views, Central Tyrrhenian Sea, off Latium coast, deep sea biocoenosis, 540 m depth, H = 6.6 mm, D = 6.0 mm, MCZR-M-TYPE 00122. Figs. 5, 6: paratype, frontal and dorsal views, Central Tyrrhenian Sea, off Latium coast, deep sea biocoenosis, 540 m depth, H = 6.3 mm, D = 5.9 mm, CS-PM. Figs. 7, 8: paratype, SEM, frontal and apical views and detail of the microsculpture, Central Tyrrhenian Sea, off Latium coast, deep sea biocoenosis, 540 m depth, subadult, H = 4.5 mm, D = 4.1 mm, CS-PM. Figs. 9, 10: paratype, SEM, frontal and apical views, Central Tyrrhenian Sea, off Latium coast, deep sea biocoenosis, 540 m depth, juvenile stage, H = 1.8 mm, D = 2.0 mm, CS-PM. Figures 11–17. *Putzeysia wiseri* (Calcara, 1842). Figs. 11, 12: = "*Trochus*", frontal and dorsal views, "Med.", Mediterranean Sea, MTS ex Fischer collection, MCZR-M-30097. Fig. 13: original label handwritten by Monterosato, MCZR-M-30097. Figs. 14–17: frontal, dorsal, apical and basal views, Central Tyrrhenian Sea, off Latium coast, deep sea biocoenosis, 500 m depth, H = 6.4 mm, D = 5.6 mm, CS-PM. Figures 18–22. *Trochus gemmulatus* Philippi, 1844. Figs. 18–21: frontal, dorsal, apical and basal views and original label handwritten by Seguenza, probable from the tertiary lands of the Messina district, Sicily, ex Seguenza collection, MTS, H = 5.0 mm, D = 4.9 mm, MCZR-M-11271. Fig. 22: original label handwritten by Seguenza, MCZR-M-11271. Figures 23–26. *Putzeysia rickyi* Reitano et Scuderi, 2021, holotype, frontal, dorsal, apical and basal views, Catania, Sicily, 38 meters depth, H = 4.0 mm, D = 3.2 mm, MSNC 4853.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Putzeysia reticulata n. sp. (Figs. 1–10)
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TYPE MATERIAL. Holotype, 6.8 mm (H) X 5.7 mm (W); MCZR-M-TYPE 00122; paratypes 1–20, CS-PM.

TYPE LOCALITY. Off Latium coast (Italy), Central Tyrrhenian Sea, deep sea white coral biocenosis, 540 m depth.

DESCRIPTION. Turbiniform gastropod shell, globose, slightly elongated, rather thin and light with 4.5–5 body whorls with a slightly graduated shoulder; the last whorl represents more than 50% of the total height; barely visible suture. Protoconch slightly oblique observed on a sub-adult specimen. Semicircular aperture opening, of nacreous colour inside, with a thin, almost sharp edge and smooth inside, straight and smooth columella. Teleoconch sculptured on the last whorl by 8–9 fine spiral cords, regularly arranged and spaced by large interspaces crossing with numerous thin prosocline axial ribs. The sculpture thus forms a grid composed of large inclined prosocline rectangles. At the intersection of the spiral cords with the axial ribs tiny spiniform processes may be present. Base decorated with 6 thin and slender spiral cords with large interspaces; presence of umbilical fissure; whitish color, periostracum absent.

Operculum and soft parts unknown.

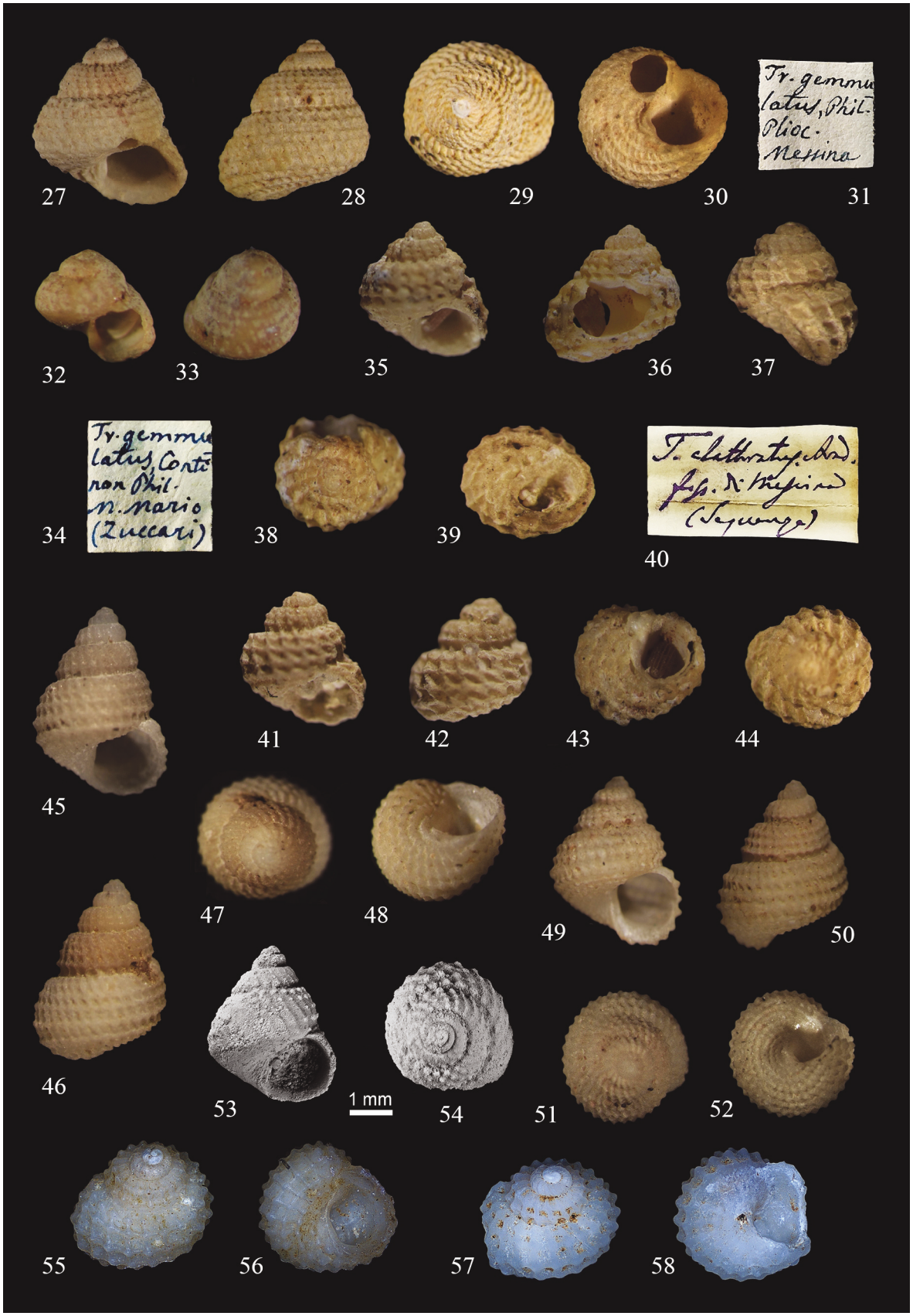
ETYMOLOGY. The species is named in reference to his reticulate sculpture.

DISTRIBUTION. Currently known only from bathyal bottoms of its type locality, associated to deep-sea white coral biocenosis.

REMARKS. Specimens of *P. reticulata* n. sp. have been compared with shells of other recent and fossil species ranked in its genus. The new taxon shows a very peculiar sculpture, which neatly allows its morphological separation from all the other congeneric species.

Putseyzia wiseri, *P. franziskae*, *P. juttae* and *P. rickyi*, as well as the fossil *P. diversii*, display a sculpture consisting of spiral cords and axial ribs with strong nodules at the intersections, on the contrary *P. reticulata* n. sp. shows fine spiral cords which cross delicate axial ribs free of nodules at the intersections. Regarding *P. cillisi* and *P. clathrata*, these taxa are on average smaller in size than *P. reticulata* n. sp. (H = 1.99 mm holotype of *P. cillisi* and H = 2.7 mm lectotype of *P. clathrata* versus H = 6.8 mm of the holotype of *P. reticulata* n. sp.) and have a different shape, compressed in *P. cillisi* and *P. clathrata* while elongated in *P. reticulata* n. sp. Both species also display a different sculpture, consisting of a squared grid rather than rectangular, with tubercles at the intersection of the spiral cords with the axial ribs. In the Atlantic are reported four *Putseyzia* taxa: *P. wiseri* (Jeffreys, 1883; Sysoev, 2014); *P. franziskae* and *P. juttae* (Engl & Rolán, 2009) and *P. cillisi* (Segers et al., 2009). The latter has been figured by Martín Barrios (in https://www.biodiversidadcanarias.es/biota/especie/E07686), but misidentified as *P. franziskae*, which represents the first record of this species for the Canary Islands. All these species can be easily separated from *P. reticulata* n. sp. since they show a more marked sculpture.

Figures 27–31. *Trochus gemmulatus* Philippi, 1844. Figs. 27–30: frontal, dorsal, apical and basal views, Pliocene, Messina, Sicily, ex Brugnone collection, MTS, H = 4.9 mm D = 4.8 mm, MCZR-M-11271. Fig. 31: original label Brugnone handwritten, MCZR-M-11271. Figures 32–34. *Trochus gemmulatus* Conti, 1864 not Philippi, 1844. Figs. 32, 33: frontal and dorsal views, Calabriano of Monte Mario, Rome, Italy, ex Brugnone collection, MTS, Ø 1.0 mm, MCZR-M-11271. Fig. 34: original label handwritten by Brugnone, MCZR-M-11271. Figures 35–44. *Trochus clathratus* Aradas, 1847. Figs. 35-39: frontal, dorsal, lateral, apical and basal views, Pliocene, Messina, Sicily, MTS, H = 3.2 mm, D = 3.2 mm, MCZR-M-11273. Fig. 40: original label handwritten by Monterosato, MCZR-M-11273. Figs. 41–44: frontal, dorsal, apical and basal views, Pliocene, Messina, Sicily, MTS, H = 3.1 mm, D = 2.9 mm, MCZR-M-11273. Figures 45–48. *Putzeysia franziskae* Engl et Rolan, 2009, topotype, frontal, dorsal, apical and basal views, Puerto del Carmen, Lanzarote 46-50 m, Canary Island, legit Winfried Engl (CS-PM), H = 4.2 mm, D = 3.2 mm, CS-PM. Figures 49–52. *Putzeysia juttae* Engl et Rolan, 2009, topotype, frontal, dorsal, apical and basal views, Puerto del Carmen, Lanzarote 46–50 m, Canary Island, legit Winfried Engl (CS-PM), H = 4.0 mm, D = 3.6 mm, CS-PM. Figures 53, 54. *Putzeysia diversii* Kiel, Sami et Taviani, 2023, holotype, frontal and apical views, Miocene, Ca' Piantè, Emilia-Romagna, northern Italy, H = 3.3 mm, MSF 1079. Figures 55, 56. *Putzeysia cillisi* Segers, Swinnen et De Prins, 2009 , holotype, dorsal and basal views, Cabo Girao, 75 m depth, Madeira (Portugal), H = 1.99 mm, D = 2.0 mm, MMF40647. Figures 57, 58. *Putzeysia cillisi* Segers, Swinnen et De Prins, 2009, paratype, dorsal and basal views, Cabo Girao, 75 m depth, Madeira (Portugal), H = 1.8 mm, D = 2.2 mm, MMF40648.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At the moment, it is not possible to establish whether *P. reticulata* n. sp. is a Recent species or it belongs to the Würmian thanatocoenosis associated with the bathyal bottoms hosting the white coral biocoenoses (Colantoni et al., 1975; Taviani, 1978; Taviani & Colantoni, 1979; Smriglio et al., 1996; Panetta et al., 2013; Nasto et al., 2018; Smriglio et al., 2024). Considering the good state of conservation of the collected specimens, we think it could be a recent species. There is a similar case reported in literature regarding the congeneric *P. wiseri*. Since its original description (Calcara, 1842), only in 1984 it was reported to be a living species from the Strait of Sicily (Guidastri et al., 1984). Few years later, five specimens of this taxon were reported to be dredged alive from the Central Tyrrhenian Sea (Latium coast) (Smriglio et al.,1989). A search for the type materials of *Trochus gemmulatus* Philippi, 1844, and *Trochus crispulus* Philippi, 1844 – two fossil species considered synonyms of *Trochus wiseri* Calcara, 1842 (Guidastri et al., 1984; Reitano & Scuderi, 2021) and described for the same geographical area of Gravitelli (Messina, Sicily) – was carried out in the Philippi collection preserved at the Museo Nacional de Historia Natural (MNHNCL) of Santiago, Chile. Unfortunately, no type material of both species were found (personal communication of Catalina Amanda Merino Yunnissi, curator of MNHNCL, February 17, 2026). If we are facing a Recent species, *P. reticulata* n. sp. is supposed to live sympatrically with *P. wiseri*, since the latter was also found living in the same geographical area off the coast of Lazio, sharing same habitat and depth.

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