



Some new species of Skeneinae (Prosobranchia, Turbinidae)

Algunas nuevas especies de Skeneinae (Prosobranchia, Turbinidae)

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RESUMEN

Se describen tres especies nuevas de aguas profundas pertenecientes a la subfamilia Skeneinae y a los géneros *Trenchia* (dos especies) y *Lissotesta* (una especie). Se muestran sus caracteres morfológicos y se comparan con otras especies congénéricas y con otros gasterópodos "skeneiformes" de similar morfología.

ABSTRACT

Three new deep water species belonging to the subfamily Skeneinae are described. Two are placed in genus *Trenchia* and one in *Lissotesta*. Their morphological characters are shown and they are compared with other congeneric species and with other "skeneimorph" gastropods of similar morphology.

INTRODUCTION

The subfamily Skeneinae Clark, 1851 is formed by numerous genera with small sized species. HICKMAN & MCLEAN (1990) placed it as family Skeneidae Clark, 1851 in the superfamily Trochacea Rafinesque, 1815, but BOUCHET & ROCROI (2005) moved it to Turbinidae Rafinesque, 1815, with subfamily rank.

These molluscs are always small (1-3 mm) and frequently inhabit very deep water, both facts causing them to have been scarcely studied so far.

In very fine sediments that the authors obtained from deep water

dredgings (ROLÁN & PÉREZ-GÁNDARAS, 1981; PEÑAS, ROLÁN, LUQUE, TEMPLADO, MORENO, RUBIO, SALAS, SIERRA & GOFAS, 2006) some apparently unknown shells were found. After their study, we concluded that some of them are new to science and they are described in the present paper.

Abbreviations

MNCN Museo Nacional de Ciencias Naturales, Madrid
CFS collection of Frank Swinnen
H/D ratio of height/diameter

SYSTEMATIC PART

Family TURBINIDAE Rafinesque, 1915

Subfamily SKENEINAE W. Clark, 1851

Genus *Trenchia* Knudsen, 1964

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Trenchia Knudsen, 1964. *Galathea Reports* 7: 129, fig. 5 A-C. [Type species by original designation: *Trenchia wolffi* Knudsen, 1964]. Recent.

Diagnosis: A genus belonging to the Turbinidae, having a small conical shell, a relatively large aperture, a thin horny operculum and a rhipidoglossate radula with two lateral and numerous marginal teeth.

Remarks: KNUDSEN (1964: 129), on the basis of radular morphology, places his new genus in the family Trochidae, subfamily Margaritinae. WARÉN & BOUCHET (1993) consider the systematic position of *Trenchia* in the subfamily Skeneinae (Turbinidae); they mention that the genera *Trenchia* and *Ventsia* Warén & Bouchet, 1993 are close, and that their species have similar shells and radulae (the soft parts being unknown) but different protoconchs; to show this, they present SEM photographs of the holotype of *Trenchia wolffi* and the protoconch of an undescribed European species. Recently, while the genus *Trenchia* is kept in Skeneinae, placement of the genus *Ventsia* has been suggested in the Seguenzioidea (KUNZE, HEB & HASZPRUNAR, 2008), without assigned family.

Two species are currently known in the genus *Trenchia*: *T. wolffi* Knudsen, 1964 from Kermadec Trench, South Pacific Ocean and *T. argentinae* (Clarke, 1961) from the Argentine Basin, South Atlantic Ocean. Both are abyssal species dredged between 4000 and 6000 m in depth. The new species here described

came from Atlantic Seamounts (Sedio, Seine, Ampère and Galicia), which have their upper part at depths between 60 and 1000 m, or they are from coralline bottom between 80 and 200 m (Alborán Island).

Closely related genera are *Ventsia* and *Xyloskenea* Marshall, 1988. Each genus has a characteristic protoconch which diagnoses the generic position of each species:

- *Ventsia* species have a protoconch about 300 μm in width, with two parts; the initial has 5 spiral threads and the second part has short axial riblets and a strong spiral carina interrupted by a strong labial varix.

- *Xyloskenea* species have a protoconch with 200-267 μm width, with 4-6 fine spiral threads, thereafter smooth or granulate and 1-2 rounded axial pleats immediately behind the apertural rim. WARÉN (1996: 202-204, figs. 3A-B, 7C) redescribed the European species *Cithma naticiformis* Jeffreys, 1883, placed it in *Xyloskenea* and considered it as being to some extent intermediate between *Xyloskenea* and *Trenchia* by having the same protoconch sculpture as *Xyloskenea* but a smooth teleoconch like *Trenchia*.

- *Trenchia* has a protoconch of 350 μm in width, glassy and devoid of any sculpture in the type species (KNUDSEN, 1964).

Trenchia biangulata n. sp. (Figures 1-6)

Trenchia sp. Beck, Metzger & Freiwald, 2002. BIAS: Biodiversity Inventorial Atlas of Macrobenthic Seamount Animals (*Deliverable 25 of the EU-ESF project OASIS* (Oceanic seamounts: an integrated study; EVK2-CT-2002-00073) [online]: 51.

Type material: Holotype 15.05/60064H (Fig. 3) and 1 paratype 15.05/60064P (Figs. 1-2) in MNCN.

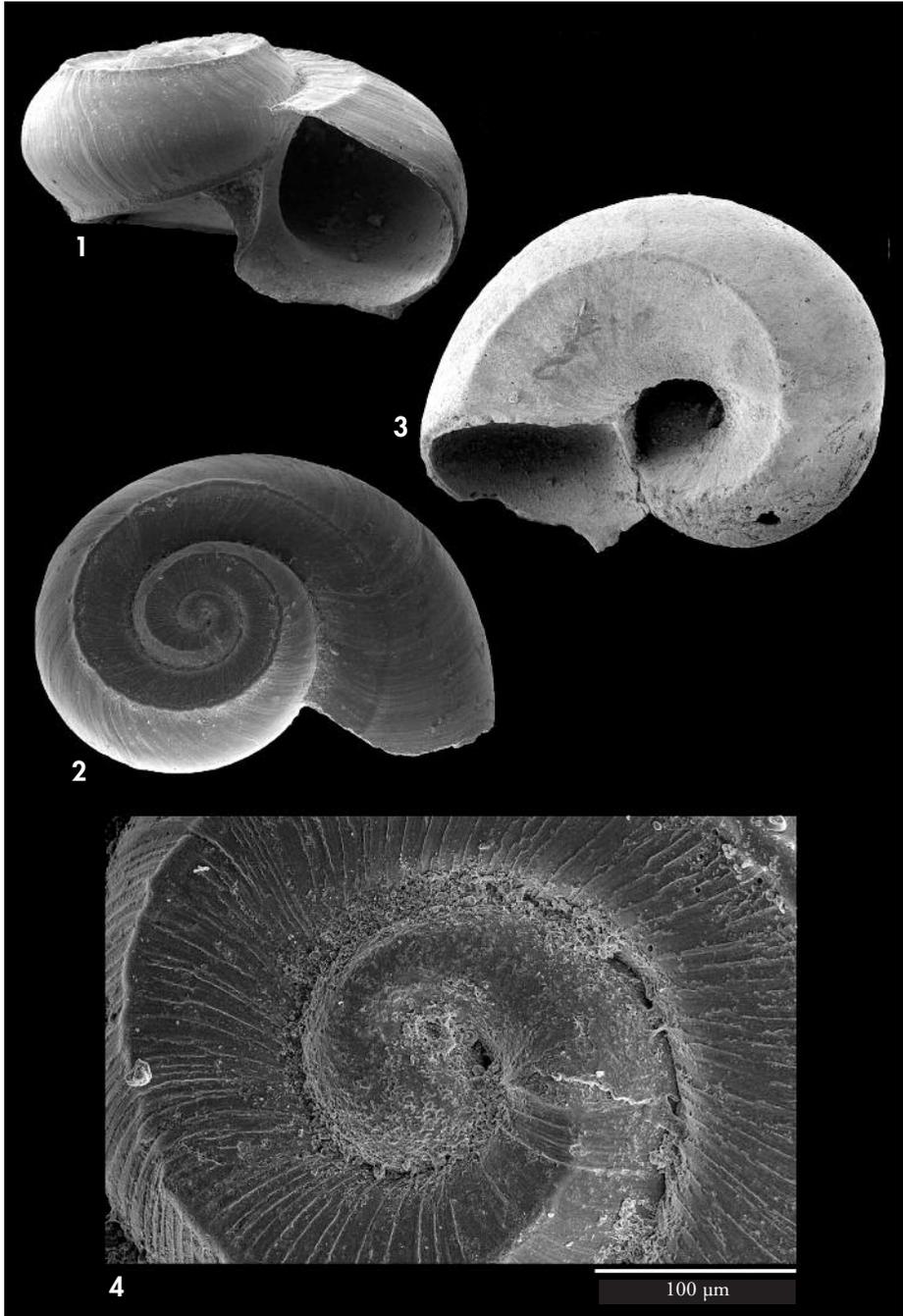
Other material examined: 1 s, Salvage Islands, 600-700 m (CFS, Fig. 5-6); 1 s, Expedition Bautismal 9812, est. 16, Punta Toston, Gran Canaria, 28° 46.474' N - 13° 59.921' W, 400 m (CFS).

Type locality: Galicia Seamount (42° 67' N, 11° 74' W), 200 km off north-western Spain, 800-1000 m.

Etymology: The specific name refers to the two spiral angulations present in the dorsal and ventral areas of the shell.

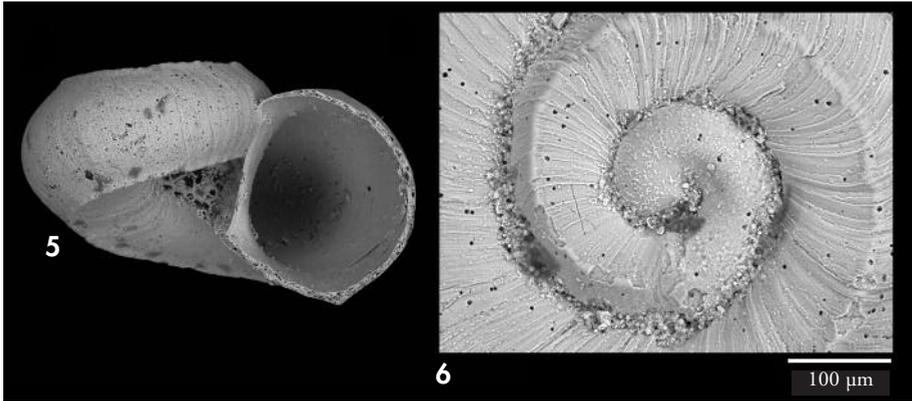
Description: Shell of very small size (<1.5 mm), of low spire, with periphery

rounded and strongly carinate above and below. The protoconch has only one whorl,



Figures 1-4. *Trenchia biangulata* n. sp. 1, 2: holotype, 1.27 mm in diameter (MNCN); 3: paratype, 1.2 mm in diameter, Galicia Seamount (42° 67' N, 11° 74' W) (MNCN); 4: protoconch of the holotype.

Figuras 1-4. Trenchia biangulata n. sp. 1, 2: *holotipo*, 1,27 mm en diámetro (MNCN); 3: *paratipo*, 1,2 mm en diámetro, Banco de Galicia (42° 67' N, 11° 74' W) (MNCN); 4: *protoconcha* del holotipo.



Figures 5, 6. *Trenchia biangulata* n. sp., Salvage Islands, shell, 1.2 mm in diameter, and protoconch.
Figuras 5, 6. *Trenchia biangulata* n. sp., Islas Salvajes, concha, de 1,2 mm de diámetro y protoconcha.

measuring approximately 200 µm; its surface is rough and presents an elevation in the middle forming an angle. The teleoconch has 2 whorls of rapid growth and is ornamented by two spiral carinae and with growth lines. These carinae are thick and high, forming angles on the shell, one next to the suture and the other near the base; the space between them, the periphery, is strongly convex. The entire surface of the teleoconch is covered with fine growth lines, more marked in the sutural area of the first whorl, which are undulating on the periphery of the shell. Umbilicus narrow and deep, markedly delimited by the angle of a raised umbilical cord. Aperture large and obliquely D-shaped. Columella straight, not very thick and slightly reflected towards the umbilicus, wider in the area of crossing between the outer lip and the umbilical cord.

Dimensions of the holotype: 1.27 mm diameter and 0.78 mm in height (H/D: 0.61).

Habitat: The species was recorded as a member of the macrofaunal seamount community; bathymetric range 59 to 750 m deep (BECK, METZGER & FREIWALD, 2006). The shell collected in Salvage Islands was dredged between 500 and 700 m; those from the Galician Bank were collected in white coralline bottom at a depth of 700-1000 m.

Distribution: Found on Sedlo Seamount (40° 25' N - 26° 55' W) north of the Azores;

Seine Seamount (33° 50' N - 14° 20' W) and Ampère Seamount, both off Portugal (BECK ET AL., 2006); Canary and Salvage Islands; Galicia Seamount off Galicia coasts, north-western Spain (this paper).

Remarks: WARÉN & BOUCHET (1993: 24, fig. 18H) figured the protoconch of a unidentified European species of *Trenchia* from Bay of Biscay, perhaps conspecific with *T. wolffi*. This protoconch is similar to that of *T. biangulata* but is wider (300 µm).

T. biangulata n. sp. is very similar in general shape to *T. wolffi* and *T. argentiniae*, being distinguished from them by its smaller shell (<1.5mm), lower spire, more elevated spiral carinae, raised umbilical cord and narrower umbilicus.

Xyloskenea naticiformis (Jeffreys, 1883) and *Xyloskenea xenos* Hoffman, Van Heugten & Lavaleye, 2010 are the only known species of *Xyloskenea* in the NE Atlantic; both species differ from *T. biangulata* in their different protoconch and by lacking the carina along the spire.

Xyloskenea translucens (Dall, 1927) and *Xyloskenea rhyssa* (Dall, 1927) from the NW Atlantic (see RUBIO, FERNÁNDEZ-GARCÉS & ROLÁN, 2011, figs 119 and 120) have the protoconch with spiral threads, typical of the genus *Xyloskenea*, contrary to that of *Trenchia biangulata* (Figs. 4 and 6) whose surface is rough and presents an elevation in the middle forming an angle, and also has a larger diameter.



Figures 7-9. *Trenchia anselmoi* n. sp. 7, 8: holotype, 1.5 mm in diameter, Alboran Island (MNCN); 9: protoconch.

Figuras 7-9. Trenchia anselmoi n. sp. 7, 8: holotipo, 1,5 mm en diámetro, Isla de Alborán (MNCN); 9: protoconcha.

Trenchia anselmoi n. sp. (Figures 7-9)

Type material: Holotype deposited in MNCN (15.05/60065).

Type locality: Alboran Island, coralligenous, 80-200 m.

Etymology: The specific name is after Anselmo Peñas, malacologist of Vilanova i la Geltrú who collected the holotype in sediments from Alboran.

Description: Shell of very small size (1.5 mm), wider than high, spire formed by barely 2.5 whorls of rapid growth. Protoconch near $\frac{3}{4}$ of whorl, measuring 260 μm in diameter, with a finely roughened surface and in its middle area an elevation forming an angle. The teleoconch has $1\frac{3}{4}$ whorl, and is completely smooth except for a thick, raised umbilical cord and rough, very tight and sinuous growth lines. Aperture relatively large, D-shaped; the outer lip is sharp and connected with the parietal wall posteriorly at an angle of about 90° ; columella opisthocline, straight, slightly angled at the insertion site with outer lip and umbilical cord. Umbilicus

narrow and deep occluded by the angle with the umbilical cord extension.

Dimensions of the holotype: 1.5 mm diameter and 1.0 mm height (H/D: 0.67).

Habitat: Collected between 80 and 200 m deep, in sediments from the coralligenous bottoms near Alboran Island.

Distribution: Only known from Alboran Island, its type locality.

Remarks: Its general shape, the protoconch, the D-shaped aperture and the umbilical cord extended at an angle are the main reasons for the placement of this species in the genus *Trenchia*.

Trenchia anselmoi n. sp. can be distinguished from *T. wolfii*, *T. argentinae* and

T. biangulata because its teleoconch lacks any spiral carinae. It may be distinguished from the European species *Xyloskenea naticiformis* and from juveniles of *Choristella nofronii* McLean, 1992 by the different ornamentation of the protoconch and by the presence of a keel on the basal area, surrounding a broad, funnel shaped umbilicus. From *Xyloskenea rhyssa*, it may be differentiated by the different ornamentation of the protoconch and lack of axial sculpture (see RUBIO ET AL., 2011, Fig. 119).

Xyloskenea xenos Hoffman, van Heugten & Lavaleye, 2010 has a shell which is more elevated. In the original description it is mentioned that the diameter of the protoconch is about 160 μm but the figure of the protoconch with the scale in it included could represent a diameter of about 300 μm , in any case different to the size of our species. The protoconch of our species has an elevation along this part, while in *X. xenos* it is only present in a short part (see figure 30 in the original description).

Genus *Lissotesta* Iredale, 1915

Lissotesta Iredale, 1915. *Transactions of the New Zealand Institute*, 47: 442. [Type species by original designation: *Cyclostrema micra* Tennison-Woods, 1877. Tasmania. Recent].

Intortia Egorova, 1972. *Issledovaniya Fauny Morej*, 19: 386. [Type species by original designation: *I. homocostata* Egorova, 1972. Antarctic].

Diagnosis: WARÉN (1992: 169) describes this genus as: "Very small, globular gastropods, usually with a characteristic larval shell covered by an outer coating of, usually, finely granular, calcium carbonate which makes the suture almost invisible, except by transparency. 2-3 well rounded teleoconch whorls and a deep umbilicus with internal ridges. Radula with central tooth, one small inner and a larger outer lateral tooth and about five, basally united, flagelliform marginals".

Remarks: There are four European species in the genus *Lissotesta*: *L. minima* (Seguenza, 1876), *L. gittenbergeri* (van

Aartsen & Bogi, 1988), *L. turrita* (Gaglioli, 1987) and *L. major* Warén, 1992.

A very characteristic feature of the species of *Lissotesta* is the protoconch, which is large and swollen, dome-shaped, usually with a granular sculpture and lacking almost any trace of coiling. About *L. minima*, WARÉN (1992: 169) writes: "*L. minima* (Seguenza, 1876) is here included in *Lissotesta* although it does not fit and will probably need a new genus when this group is better known. Presently I hesitate to propose a new genus for this featureless shell, which I place in *Lissotesta* because it has a similar umbilicus and shape".

Lissotesta scalaroides n. sp. (Figs. 10-13)

Type material: Holotype (Figs. 10-13) deposited in MNCN (15.05/60061).

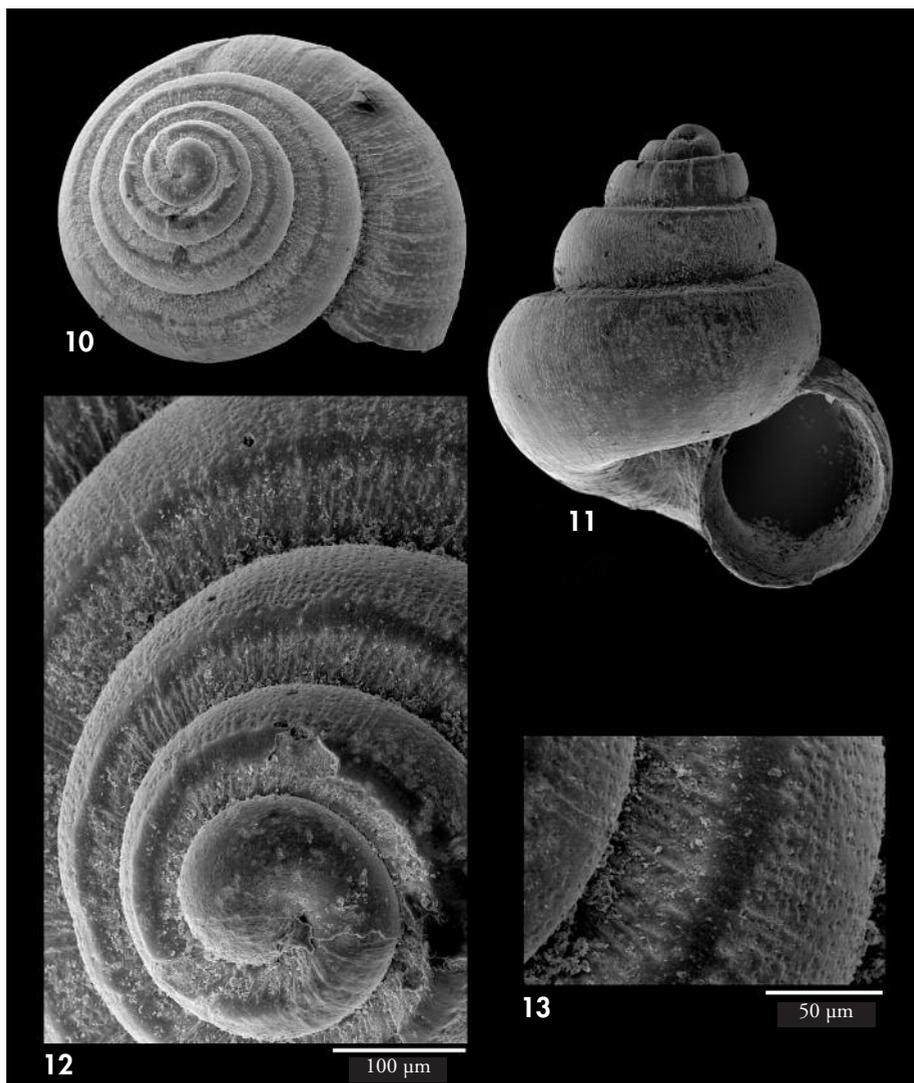
Type locality: Galicia Seamount (42° 67' N, 11° 74' W), 200 km off Galicia coasts, north-western Spain.

Etymology: The specific name refers to the stepped shape of the spire.

Description: Skeneimorph shell, very small (<1.5 mm), with robust aspect and a scalariform appearance. The protoconch measures 170 μm in diameter, has $\frac{3}{4}$ of a whorl, and its surface is covered with a fine granular sculpture. Teleoconch consisting of up to 3 $\frac{3}{4}$ convex

whorls, completely covered with spirally aligned micro pits and growth lines.

From the suture at the beginning of the periphery there is a flat area, although slightly inclined, which runs throughout the spire and gives the shell



Figures 10-13. *Lissotesta scalaroides* n. sp. 10-11: holotype, 1.11 mm in height, Galicia Seamount (42°67'N-11°74'W) northwestern Spain (MNCN); 12: protoconch; 13: microsculpture.

Figuras 10-13. Lissotesta scalaroides n. sp. 10-11: holotipo, 1,11 mm de altura, Banco de Galicia (42°67'N-11°74'W) noroeste de España (MNCN); 12: protoconcha; 13: microescultura.

its scalariform appearance; it disappears in the last quarter whorl apparently by a fracture on the surface of the shell. One strong and sharp spiral cord around and inside the umbilicus. Aperture rounded, prosocline; outer lip not modified or thickened, columella thin and reflected outwardly. Umbilicus narrow and deep.

Dimensions of the holotype: 0.96 mm in diameter; 1.11 mm in height (H/D: 1.15).

Hábitat: The studied shell is from a white coralline bottom dredged at a depth of 700-1000 m.

Distribution: Only known from Galicia Seamount (42° 67' N, 11° 74' W),

200 km off Galicia coasts, north-western Spain.

Remarks: The surface totally covered by spirally aligned micro pits, growth lines and a thick spiral cord that is located around and inside the umbilicus, characterize the shell of *Lissotesta scalaroides* and differentiate it from its congeneric species. The present species, as well as *Lissotesta minima* (Seguenza, 1876), does not have the characteristic protoconch of most of the species in this genus, which is "large and swollen, dome-shaped, usually with a granular sculpture and lacking almost every trace of coiling". According to WARÉN (1992), a possibility would be to create a new genus for "*Lissotesta*" *minima*, in which could be placed the species now

described, since both species present characters in the protoconch that make them different from the rest of species currently considered congeneric. However the lack of knowledge of their soft parts and radula prevents us at present to do this.

Lissotesta scalaroides n. sp. has a general shape very similar to *Mikro hattonensis* Hoffman, Van Heugten & Lavaleye, 2010 from Hatton Bank, from which our new species may be distinguished by having a larger diameter of the protoconch (170 versus 130 μm), by the micropits which totally cover the teleoconch (not only the top of the whorls), by lacking a true keel in the umbilicus, and having microsculpture extending into this infundibulum.

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BIBLIOGRAPHY

- BECK T., METZGER T. & FREIWALD A. (2006). Biodiversity inventorial atlas of macrobenthic seamount animals. *Deliverable 25 of the EU-ESF project OASIS* (Oceanic seamounts: an integrated study; EVK2-CT-2002-00073) [online]. 126 pp.
- BOUCHET P. & ROCROI J.-P. (eds.). 2005. *Classification and nomenclator of gastropod families*. *Malacologia*, 47(1-2) and ConchBooks, Hackenheim, Germany. 397 pp.
- HICKMAN C.S. & MCLEAN J.H. 1990. Systematic revision and suprageneric classification of trochacean gastropods. *Natural History Museum of Los Angeles County Science Series*, 35: 1-169.
- HOFFMAN L., HEUGTEN B. VAN & LAVALEYE M.S.S. 2008. Skeneimorph species (Gastropoda) from the Rockall and Hatton Banks, northeastern Atlantic Ocean. *Miscellanea Malacologica*, 4 (4): 47-61.
- KNUDSEN J. 1964. Scaphopoda and Gastropoda from depths exceeding 6000 meters. *Galathea Reports*, 7: 125-136.
- KUNZE T., HERB M. & HASZPRUNAR G. 2008. The microanatomy of the skeneimorph *Ventsia tricarinata* Warén & Bouchet, 1993, a small seguenzoid from Pacific hydrothermal vents (Vetigastropoda). *American Malacological Society 74 th annual meeting, USA, Abstracts*: 33.
- MARSHALL B. A. 1988. Skeneidae, Vitrinellidae and Orbitestellidae (Mollusca:Gastropoda) associated with biogenic substrata from bathyal depths off New Zealand and New South Wales. *Journal of Natural History*, 22: 949-1004.
- PEÑAS A., ROLÁN E., LUQUE A.A., TEMPLADO J., MORENO D., RUBIO F., SALAS C., SIERRA A. & GOFAS S. 2006. Moluscos marinos de la isla de Alborán. *Iberus*, 24 (1): 23-151.
- ROLÁN E. & PÉREZ-GÁNDARAS G. 1981. Molluscs collected at the Galizia Bank (Spain). *La Conchiglia*, 13 (150-151): 6-7, 10, 15.
- RUBIO F., FERNÁNDEZ-GARCÉS R. & ROLÁN E. (2011) The family Tornidae (Gastropoda, Rissooidea) in the Caribbean and neighboring areas. *Iberus*, 29 (2): 1-230.

- THIELE J. 1935. *Handbook of Systematic Malacology*. Vol. 1, Part 2 (Gastropoda: Opisthobranchia and Pulmonata). Translated from German by J.S. Bhatti (Bieler, R. & Mikkelsen, P., eds.) Smithsonian Institution libraries and National Science Foundation, 1992. 625 pp.
- WARÉN A. 1992. New and little known "skeneimorph" gastropods from the Mediterranean Sea and the Atlantic Ocean. *Bollettino Malacologico*, 27: 149-201.
- WARÉN A. 1996. New and little known mollusca from Iceland and Scandinavia. Part 3. *Sarsia*, 81: 197-245.
- WARÉN A. & BOUCHET P. 1993. New, records, species, genera, and a new family of gastropods from hydrothermal vents and hydrocarbon seeps. *Zoologica Scripta*, 22: 1-90.

