

AN ANNOTATED CHECKLIST OF THE FRESHWATER MOLLUSCS (GASTROPODA, BIVALVIA) OF CRETE, GREECE

ELISAVET GEORGOPOULOU

Natural History Museum of Crete, University of Crete, School of Sciences and Engineering, Heraklion, Greece (e-mail: georgelisavet@yahoo.gr);  <https://orcid.org/0000-0003-3806-0386>

ABSTRACT: An updated checklist of the freshwater molluscs of the island of Crete (Greece) based on an extensive literature review is presented herein. Twenty-four gastropods and three bivalve species were documented and placed in 13 families. Eleven more taxa were reported, their presence on the island and/or taxonomic status are discussed. The most species-rich family was Planorbidae Rafinesque, 1815 counting seven species in Crete. One record of the alien species *Potamopyrgus antipodarum* (Gray, 1843) was reported. New species belonging to the genera *Pseudamnicola* Paulucci, 1878 and *Bythinella* Moquin-Tandon, 1856 have been identified by previous research efforts, but have not been described yet. More field studies are necessary in order to reveal the true freshwater molluscan richness of Crete. This study aims to be a guide for malacologists wishing to explore the gastropod and bivalve diversity of Cretan fresh waters.

KEY WORDS: biodiversity; dubious taxa; literature review; species richness; Mediterranean island

INTRODUCTION

The phylum Mollusca is the second most diverse animal group on Earth (BOUCHET et al. 2016). A global estimation of freshwater gastropods and bivalves counts about 7,000 species (MOLLUSCABASE 2024a). Despite their ecological importance (ZIERITZ et al. 2022), there is a considerable gap in our knowledge of species even in relatively well-studied geographic areas (LOPES-LIMA et al. 2021). For example, several new species and genera have been described in the last twenty years (e.g. SANDS et al. 2020, MILLER et al. 2023) in the Mediterranean region, a well-known hotspot of freshwater biodiversity (STRONG et al. 2008, GEORGOPOULOU et al. 2016a), demonstrating that our knowledge of these molluscs in southern Europe is far from complete. Similarly, new taxa have been added to the list of Greek freshwater molluscs (e.g. RADEA et al. 2013, 2016, 2021, GLÖER & HIRSCHFELDER 2020, HOFMAN et al. 2021, GLÖER & FISCHER 2022). Up until now, updated species lists are known only for certain regions or islands (e.g. SEIDL 2001, GEORGOPOULOU et al. 2016b) or water bodies (e.g. ALBRECHT et al. 2009, 2012,

GEORGOPOULOU et al. 2016a), while several parts of the country remain largely unexplored.

The island of Crete lies in the southernmost tip of Greece and Europe, and it is the fifth largest island in the Mediterranean Sea. Crete is home to a great number of endemic animals and plants species (e.g. KOUGIOUMOUTZIS et al. 2020, BOLANAKIS et al. 2024). The island's natural history is shaped by a combination of factors including the long isolation from any other land during the last five million years (MEULENKAMP 1985), the mosaicity of the land that creates a plethora of habitats and the continuous presence of humans at least during the last ca. 8,000 years (RACKHAM 2008). The island has several rivers, mostly with intermittent flow, as well as, natural lakes, spring-lakes, springs, wells and dams. Recently, WWF Greece presented a catalogue of 200 natural and artificial wetlands throughout the island of Crete and adjacent islets (<https://www.ygrotopio.gr/>), among which, 69 are protected under a Presidential Decree (PD 229/19.06.2012).

The first record of a freshwater mollusc from Crete, currently accepted as *Melanopsis buccinoidea* (Olivier, 1801), was provided by OLIVIER (1801, 1804) in his two-volume work entitled “Voyage dans l’ Empire Othoman, l’ Égypte et la Perse... la République”. Later, additions to the island’s freshwater molluscan fauna were provided by RAULIN (1869). MARTENS (1889) provided the first checklist of freshwater molluscs of Crete. During the 20th century, a historical review of Cretan molluscs, including terrestrial and freshwater species was published by SEIDL (1978). The most up to date catalogue of Greek (including Cretan) freshwater molluscs with an extensive bibliographic review was assembled by BANK (2006). The European checklist of terrestrial and freshwater gastropods (BANK & NEUBERT 2017) also included the Cretan species, but the list did not seem to be exhaustive, as some species mentioned by BANK (2006) were omitted. According to BANK (2006) and BANK & NEUBERT (2017) 15 and 12 species are known to be present in Crete, respectively. Recently, GLÖER & HIRSCHFELDER (2019) made a list of the freshwater gastropods of Crete, 19 species in total, without giving other information than the species names.

Recent research effort has focused on the study of species lineages living in Crete, combining morphological and molecular analyses. For example, the study of the genus *Pseudamnicola* Paulucci, 1878 suggested the presence of at least two separate lineages on the island, that can only be identified by molec-

ular analyses as their shell and genital characteristics are similar (LAMPRI et al. 2022). On the other hand, the genus *Bythinella* Moquin-Tandon, 1856, is represented in Crete by at least five species (groups) with distinct morphological and anatomical features (LAMPRI et al. 2022). Another species that has been studied from the island of Crete is *Heleobia maltzani* (Westerlund, 1886), now accepted as *Eupaludestrina maltzani* (Westerlund, 1886) (MOLLUSCABASE 2024b). *E. maltzani* was originally described from Crete (WESTERLUND 1886) and was considered an endemic species, however SZAROWSKA et al. (2014) showed that the species did not differ anatomically or genetically from its congeneric relatives and thus, concluded that it was probably a common widespread species in the Mediterranean and European semi-saline waters. Finally, other taxa, that have been surveyed in the east Mediterranean but not with a particular focus on the island of Crete, include the genera *Theodoxus* Montfort, 1810 (SANDS et al. 2020) and *Melanopsis* Férussac, 1807 (FALNIOWSKI et al. 2020).

The aim of this work is to compile and present an up-to-date annotated checklist of names of the freshwater gastropods and bivalves of Crete based on an extensive bibliographic research effort. In addition, a map showing all identified locations bearing freshwater molluscs from Crete is provided. The study will serve as a reference for future research efforts focusing on Cretan freshwater molluscs.

MATERIAL AND METHODS

The annotated checklist is a result of an exhaustive literature review of publications, including

books, research articles, conference abstracts and internet sources. Taxa records retrieved from the

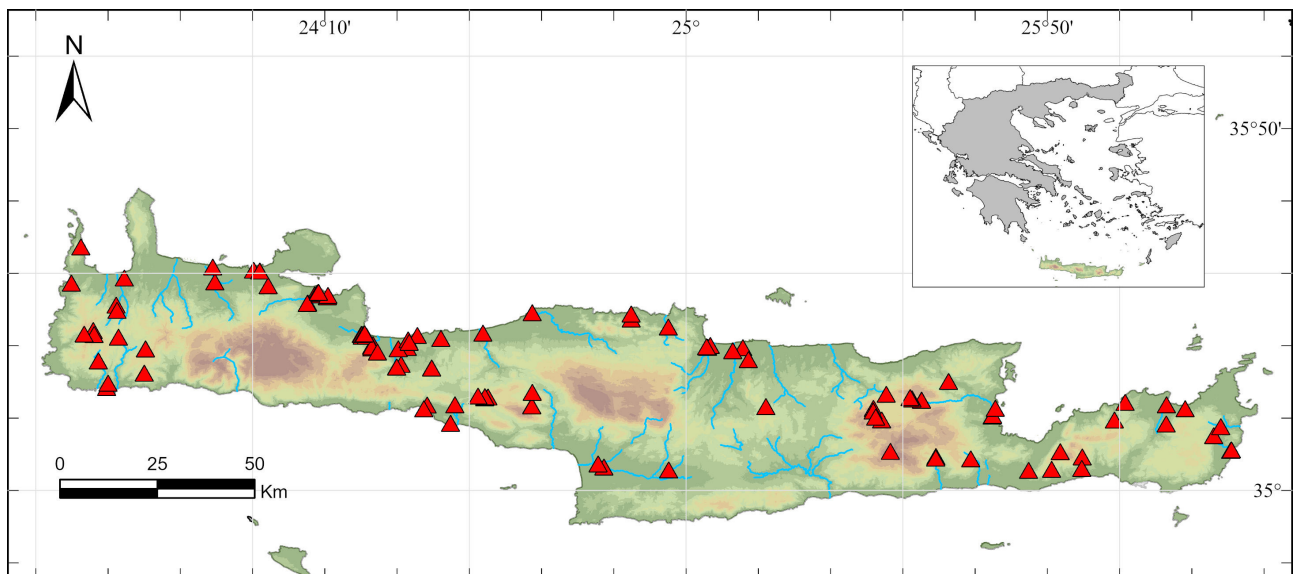


Fig. 1. Greece is located in the eastern Mediterranean and the island of Crete lies in the southern tip of the country. The island relief and the main river systems are shown. The literature records are depicted with red triangles.



above listed sources were matched, when possible, with geographic coordinates of the location given in the source. Taxa records which could not be assigned geographic coordinates were maintained for the checklist but were not depicted in the accompanying distribution map (Fig. 1). Such cases refer to (most-

ly 19th century) publications, where the author(s) mentioned general names of places e.g. "Crete" and therefore it was not possible to associate the location with a set of geographic coordinates. Nomenclature in the annotated checklist follows [MOLLUSCABASE \(2024a\)](#).

RESULTS

The checklist contains 308 taxa records deriving from 49 publications spanning in a period of 223 years, i.e. 1801 to 2024. It was possible to match 204 taxa records with geographic coordinates from the 308 (Fig. 1, Supplementary Table S1). In total, 27 accepted species and two subspecies were identified. The 27 species belonged to 13 families and 22 genera. The most species-rich family was Planorbidae Rafinesque, 1815 with seven species, followed by Lymnaeidae Rafinesque, 1815, Bythinellidae Locard, 1893 and Sphaeriidae Deshayes, 1855 (1820) with three species each (Fig. 2). Another 11 taxa were found but were excluded from the checklist: i)

three taxa, *Planorbis rotundatus* Poiret, 1801, *Ancylus gibbosus* Bourguignat, 1853 and *Peregriana labiata* (Rossmässler, 1835) are classified as taxa inquirenda, ii) the known distributions of six taxa, *Theodoxus anatolicus* (Récluz, 1841), *Theodoxus baeticus* (Lamarck, 1822), *Ancylus capuloides* Jan in Porro, 1838, *Bythinella* sp., *Bythinella viridis* (Poiret, 1801) and *Adriohydrobia gagatinella* (Küster, 1852) do not include Crete, iii) it was not possible to trace any information for the species *Pisidium creticum* Cless., and thus its current status remains uncertain, and iv) the species *Theodoxus peloponensis* (Récluz, 1841) is a dubious species and its known distribution does not include Crete.

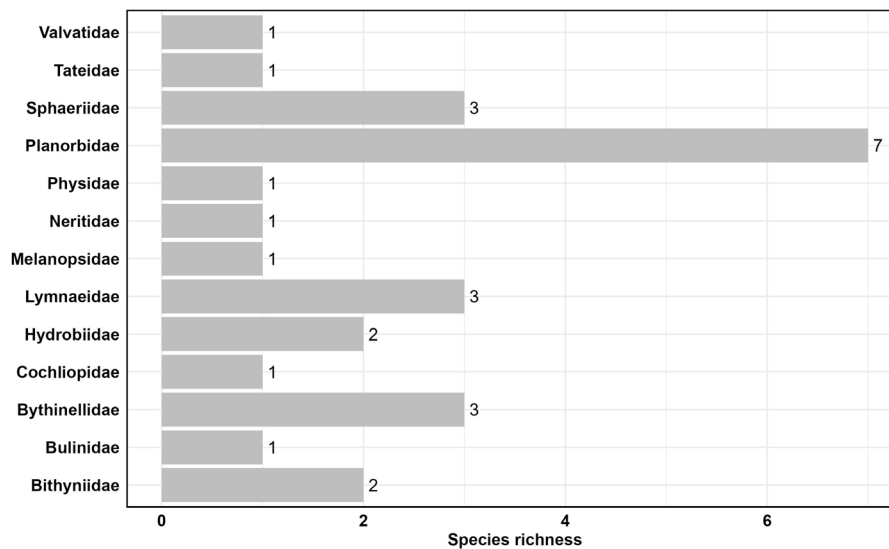


Fig. 2. Species richness per family of freshwater molluscs known from the island of Crete



ANNOTATED CHECKLIST

Phylum Mollusca

Class Gastropoda Cuvier, 1795

Subclass Neritimorpha Koken, 1896

Order Cycloneritida Frýda, 1998

Superfamily Neritoidea Rafinesque, 1815

Family Neritidae Rafinesque, 1815

Subfamily Neritinae Poey, 1852

Genus *Theodoxus* Montfort, 1810

1. *Theodoxus fluviatilis* (Linnaeus, 1758)

Neritina heldreichi – MARTENS 1879: 225, pl. 22, fig. 9, 10

Neritina (*Theodoxus*) *heldreichi* var. *graeca* – WESTERLUND 1886: 152

Neritina (*Theodoxus*) *heldreichi* var. *graeca* – KOBELT 1899: 9, pl. 213, fig. 1337

Theodoxus saulcyi – SCHÜTT 1986: 285, fig. 12–14

Theodoxus saulcyi – FRANK 1988: 82

Theodoxus (*Theodoxus*) *saulcyi* – BANK 2006: 52

Theodoxus (*Theodoxus*) *saulcyi* – BANK & NEUBERT 2017: 3

Theodoxus (*Theodoxus*) *saulcyi* – GLÖER & HIRSCHFELDER 2019: 22, table 1

Theodoxus saulcyi – SANDS et al. 2019: Appendix S1, table S1.1

Theodoxus saulcyi – SANDS et al. 2020: table S1, fig. 10L

Remarks: Although several names are known regarding *Theodoxus* from Crete, recent molecular analyses showed that only the *Theodoxus fluviatilis* clade lives in the island (BUNJE & LINDBERG 2007, SANDS et al. 2019). *T. fluviatilis* is distributed across Europe to northern Africa and Asia Minor and the European part of Russia (SANDS et al. 2020 and references therein). In Crete the species has been found in springs, rivers, and lakes (SCHÜTT 1986, GLÖER & HIRSCHFELDER 2019).

Subclass Caenogastropoda Cox, 1960

Superfamily Cerithioidea Fleming, 1822

Family Melanopsidae Adams et Adams, 1854

Genus *Melanopsis* Férussac, 1807

2. *Melanopsis buccinoidea* (Olivier, 1801)

Melania buccinoidea OLIVIER 1801: 297, pl. 17, fig. 8

Melanopsis buccinoidea (*Melania*) – FÉRUSSAC & FÉRUSSAC 1807: 710–771

Melanopsis praerosa (*Buccinum*) – RAULIN 1869: 988

Melanopsis praerosa – WESTERLUND & BLANC 1879: 143

Melanopsis praerosa – HESSE 1883: 80

Melanopsis praerosa = *buccinoidea* – MARTENS 1889: 189, 222, 232, table II, III

Melanopsis buccinoidea – STURANY 1904: 112

Melanopsis praerosa-buccinoidea – FUCHS & KÄUFEL 1934: 72

Melanopsis (*Melanopsis*) *praerosa buccinoidea* – FUCHS & KÄUFEL 1936: 542–543

Melanopsis buccinoidea – SEIDL 1978: 173

Melanopsis buccinoidea – TILLIER & MORDAN 1983: 157

Melanopsis praerosa buccinoidea – FRANK 1988: 82

Melanopsis buccinoidea [= *ferussaci* Roth, 1839] – GLAUBRECHT 1993: 46, fig. 1, pl. 1, fig. 12

Melanopsis buccinoidea – BANK 2006: 53

Melanopsis buccinoidea – BANK & NEUBERT 2017: 10

Melanopsis buccinoidea – GLÖER & HIRSCHFELDER 2019: 22, table 1

Remarks: *Melanopsis buccinoidea* was described by OLIVIER (1801) as *Melania buccinoidea*. However, OLIVIER (1801) did not specify the type locality, simply mentioning that the species lived in Chios Island, almost all the island of the Archipelago (Aegean Sea), in Crete and Syria. RAULIN (1869) considered *M. buccinoidea* as a synonym of *Melanopsis praerosa*. Similarly, WESTERLUND & BLANC (1879) synonymized *M. buccinoidea* with *M. praerosa* without referring to the work of RAULIN (1869). Later, HESSE (1883) reproduced the list of species from RAULIN (1869) in order to make Raulin's work accessible to more malacologists and therefore listed again the species as "*M. praerosa*". MARTENS (1889) referred to the species thrice. First the species was mentioned as *Melanopsis praerosa* (L.) from Chania in page 189 (MARTENS 1889). Then, in table II in page 222 the species was listed as "*Melanopsis praerosa* (L.) = *buccinoidea* Olivier" and then again in table III in page 232 as "*Melanopsis praerosa* L. (*buccinoidea* Olivier)". Considering the above, I assume that MARTENS (1889) treated the "*Melanopsis praerosa* L." of Crete a synonym to the species *Melanopsis buccinoidea*. In the 20th century, FUCHS & KÄUFEL (1934, 1936) mentioned that *M. buccinoidea* is predominant in the Aegean islands including Crete. SEIDL (1978) considered that the records from RAULIN (1869), WESTERLUND & BLANC (1879) and MARTENS (1889) belong to *M. buccinoidea*. GLAUBRECHT (1993) stated that the species from Crete is *M. buccinoidea*, but erroneously referred to it as *M. praerosa* in pl. 1, fig. 12 in page 93. NEIBER & GLAUBRECHT (2019) recognised a distinct lineage of *Melanopsis* in the eastern Mediterranean and the Near to Middle East, which includes the species *M. buccinoidea*. Furthermore, the distribution of the species *M. praerosa* (Linnaeus, 1758) seems to be restricted to Spain and north-western Africa (NEIBER & GLAUBRECHT 2019, FALNIOWSKI et al. 2020). At the same time, a most recent research study showed that *M. buccinoidea* is restricted to northern Aegean islands (FALNIOWSKI et al. 2020). However, neither



NEIBER & GLAUBRECHT (2019) nor FALNIOWSKI et al. (2020) provide any information on the melanopsids of Crete. Considering all the above, I assigned all records of *M. praemorsa* from Crete to the name *M. buccinoidea*. However, the taxonomic and phylogenetic study of fresh material from Crete is considered imperative in order to reveal the true identity of the Cretan melanopsids. In Crete the species is known from springs, streams and rivers.

Order Littorinimorpha Golikov et Starobogatov, 1975

Superfamily Truncatelloidea Gray, 1840

Family Bithyniidae Gray, 1857

Genus *Bithynia* Leach in Abel, 1818

3. *Bithynia candiota* (Westerlund, 1886)

Bythinia badiella var. *candiota* WESTERLUND 1886: 22

Bithynia badiella var. *candiota* – SEIDL 1978: 173

Bithynia candiota – FRANK 1988: 83

Bithynia (*Codiella*?) *candiota* – BANK 2006: 53

Bithynia candiota – GLÖER & MAASSEN 2009: 42, figs 21–24

Bithynia candiota – BANK & NEUBERT 2017: 12

Bithynia candiota – GLÖER & HIRSCHFELDER 2019: 22, table 1

Remarks: The species was described by WESTERLUND (1886) as “*B. badiella* var. *candiota*”. The type locality provided by the author was “Candia” which is the Venetian name for Crete or Heraklion (the largest city of Crete). *B. candiota* is endemic to Crete, known to live in the rivers of the island (GLÖER & MAASSEN 2009, GLÖER & HIRSCHFELDER 2019).

4. *Bithynia cretensis* Glöer et Maassen, 2009

Bithynia cretensis GLÖER & MAASSEN 2009: 42–43, figs 31–36

Bithynia cretensis – BANK & NEUBERT 2017: 12

Bithynia cretensis – GLÖER & HIRSCHFELDER 2019: 22, table 1

Remarks: *B. cretensis* is a Cretan endemic species (GLÖER & MAASSEN 2009). The species is known from a stream in Lasithi in eastern Crete (GLÖER & MAASSEN 2009).

Family Hydrobiidae Stimpson, 1865

Genus *Pseudamnicola* Paulucci, 1878

5. *Pseudamnicola brachia* (Westerlund, 1886)

Paludinella (*Pseudamnicola*) *brachia* WESTERLUND 1886: 76–77

Amnicola exotica – MARTENS 1889: 232, table 2

Bythinella (*Bythinella*) *brachia* – JAECKEL 1967: 95

Pseudamnicola (*Pseudamnicola*) *exotica* – PIEPER & WILLMANN 1978: 121

Bythinella brachia – PIEPER & WILLMANN 1978: 129

Amnicola exotica – SEIDL 1978: 173

Pseudamnicola brachia – SCHÜTT 1980: 132–133, fig. 29, Abb. 4, Taf. 10

Pseudamnicola (*Pseudamnicola*) *brachia* – BANK 2006: 53

Pseudamnicola brachia – SZAROWSKA et al. 2014: 2488–2489, figs 2–4

Pseudamnicola brachia – GLÖER & HIRSCHFELDER 2015: 111

Pseudamnicola brachia – SZAROWSKA et al. 2016b: fig. 7 A–D, fig. 10 L–O,

Pseudamnicola brachia – BANK & NEUBERT 2017: 16

Pseudamnicola brachia – GLÖER & HIRSCHFELDER 2019: 12–13, figs 1, 3

Remarks: The name *A. exotica* Martens, 1889 was considered a nomen nudum by BANK (2006) and a synonym of *P. brachia*. *P. brachia* is an endemic species of Crete and has been reported from springs and streams (SCHÜTT 1980).

6. *Pseudamnicola occultus* Glöer et Hirschfelder, 2019

Pseudamnicola occulta GLÖER & HIRSCHFELDER 2019: 13–15, figs 4–10

Pseudamnicola sp. – LAMPRI et al. 2022: 810, table 1

Pseudamnicola occultus – LAMPRI et al. 2024: 850, table 1

Remarks: The type locality of *P. occultus* is a spring in Chania (GLÖER & HIRSCHFELDER 2019). Moreover, GLÖER & HIRSCHFELDER (2019) suggested that the specimens figured in SZAROWSKA et al. (2016b) corresponded with *P. occultus*. Similarly, they suggested it was probable that SCHÜTT (1980) mistakenly presented *P. occultus* as *P. brachia*. Finally, LAMPRI et al. (2024) referred to the *Pseudamnicola* Group I of LAMPRI et al. (2022) as *P. occultus*. *P. occultus* is a Cretan endemic species.

Family Cochliopidae Tryon, 1866

Genus *Eupaludestrina* Mabile, 1877

7. *Eupaludestrina maltzani* (Westerlund, 1886)

Paludinella (*Hydrobia*) *maltzani* WESTERLUND 1886: 37

Hydrobia maltzani – MARTENS 1889: 232, table III

Hydrobia (*Hydrobia*) *maltzani* – PIEPER & WILLMANN 1978: 120

Paludinella (*Hydrobia*) *maltzani* – SEIDL 1978: 173

Semisalsa maltzani – SCHÜTT 1980: 117, fig. 3, Taf. 9

Heleobia (*Semisalsa*) *maltzani* – BANK 2006: 54

Heleobia maltzani – SZAROWSKA et al. 2014: 2488–2489, figs 2–4

Heleobia (*Eupaludestrina*) *maltzani* – BANK & NEUBERT 2017: 15

Heleobia (Eupaludestrina) maltzani – GLÖER & HIRSCHFELDER 2019: 22, table 1

Remarks: BANK (2006) and BANK & NEUBERT (2017) considered that *E. maltzani* is endemic to Crete, but according to SZAROWSKA et al. (2014) it is probably a common European brackish water species.

Family Bythinellidae Locard, 1893

Genus *Bythinella* Moquin-Tandon, 1856

8. *Bythinella cretensis* Schütt, 1980

Bythinella (Bythinella) badiella candiota – JAECKEL 1967: 95

Bythinella badiella – PIEPER & WILLMANN 1978: 129

Bythinella cretensis SCHÜTT 1980: 130–131, fig. 27, Abb. 3, Taf. 10

Bythinella cretensis – BANK 2006: 56

Bythinella cretensis – SZAROWSKA et al. 2014: 2488–2489

Bythinella cretensis – BANK & NEUBERT 2017: 36

Bythinella cretensis – GLÖER & HIRSCHFELDER 2019: 15–16, figs 14–18

Bythinella cretensis – GLÖER & PORFYRIS 2022: 32, figs 3.8, 4.8

Remarks: SCHÜTT (1980) and GLÖER & PORFYRIS (2022) considered that the *Hydrobia (Bythinella)* sp. mentioned by MARTENS (1889) represented a specimen of *B. cretensis*. Nevertheless, these statements cannot be validated until the material of Martens has been checked. The species *B. cretensis* is known from springs, rivers and streams of Crete (SCHÜTT 1980, GLÖER & HIRSCHFELDER 2019).

9. *Bythinella rethymnonensis* Glöer et Hirschfelder, 2020

Bythinella magdalenae GLÖER & HIRSCHFELDER 2019: 16–17, figs 20–24

Bythinella rethymnonensis GLÖER & HIRSCHFELDER 2020: 7

Bythinella rethymnonensis GLÖER & PORFYRIS 2022: 34–35, figs 3.29, 4.29

Remarks: It is a Cretan endemic that lives in springs (GLÖER & HIRSCHFELDER 2019).

10. *Bythinella sitiensis* Glöer et Hirschfelder, 2019

Bythinella sitiensis GLÖER & HIRSCHFELDER 2019: 17–18, figs 25–28

Bythinella sitiensis – GLÖER & PORFYRIS 2022: 35, figs 3.32, 4.32

Remarks: It is an endemic that lives in springs of eastern Crete (GLÖER & HIRSCHFELDER 2019).

Family Tateidae Thiele, 1925

Genus *Potamopyrgus* Stimpson, 1865

11. *Potamopyrgus antipodarum* (Gray, 1843)

Potamopyrgus antipodarum – LAMPRI et al. 2017: 45

Remarks: This is the first record of the alien species *P. antipodarum* from Crete, and the second from Greece overall (see RADEA et al. 2008).

Subclass Heterobranchia

Superfamily Valvatoidea Gray, 1840

Family Valvatidae Gray, 1840

Genus *Valvata* Müller, 1773

12. *Valvata kournasi* Glöer et Hirschfelder, 2019

Valvata kournasi GLÖER & HIRSCHFELDER 2019: 17–18, figs 40–42

Remarks: This is a recently described species, known only from its type locality, Lake Kournas, in western Crete (GLÖER & HIRSCHFELDER 2019). GLÖER & HIRSCHFELDER (2019) erroneously mentioned that figs 37–42 correspond to *V. kournasi*. The species depicted in figs 37–39 is *V. macrostoma*.

Superorder Hygrophila

Superfamily Lymnaeoidea Rafinesque, 1815

Family Lymnaeidae Rafinesque, 1815

Genus *Galba* Schrank, 1803

13. *Galba truncatula* (Müller, 1774)

Lymnaea truncatula (Buccinum) – RAULIN 1869: 987

Lymnaea truncatula – HESSE 1883: 79

Limnaea truncatula – MARTENS 1889: 189, 232, table 3

Lymnaea (Galba) truncatula – FUCHS & KÄUFEL 1936: 543

Lymnaea truncatula – SEIDL 1978: 173

Galba (Galba) truncatula – BANK 2006: 57

Remarks: There are no recent sightings of *G. truncatula* from Crete.

Genus *Radix* Montfort, 1810

14. *Radix auricularia* (Linnaeus, 1758)

Radix auricularia – LAMPRI et al. 2017: 45

Remarks: A single mention of the species presence in Crete was provided in a conference abstract by LAMPRI et al. (2017). No information on the species habitat preferences or the water body type that the species was found in the island of Crete was provided.

**Genus *Ampullaceana* Servain, 1882****15. *Ampullaceana lagotis* (Schrank, 1803)**

Ampullaceana lagotis – AKSENOVA et al. 2018: 4, Supplementary Dataset 1

Remarks: A specimen belonging to the species *A. lagotis* from Lake Kournas in Chania was analysed for molecular analyses by AKSENOVA et al. (2018).

Family Physidae Fitzinger, 1833**Genus *Physella* Haldeman, 1842****16. *Physella acuta* (Draparnaud, 1805)**

Physa capillata GASSIES in RAULIN 1869: 987

Physa capillata – GASSIES 1870: 306–307

Physa capillata – HESSE 1883: 79

Physa capillata – MARTENS 1889: 232, table III

Physa capillata – SEIDL 1978: 173

Haitia acuta – BANK 2006: 58

Remarks: *P. capillata* was described by Gassies in RAULIN (1869). The species description was provided again by GASSIES (1870) in “Journal de Conchyliologie”. Here I followed BANK (2006) who considered *P. capillata* a synonym of *P. acuta*.

Family Bulinidae Fischer et Crosse, 1880**Genus *Bulinus* Müller, 1781****17. *Bulinus truncatus* (Audouin, 1827)**

Physa brocchii – WESTERLUND & BLANC 1879: 126

Physa contorta var. *brocchii* – SEIDL 1978: 173

Bulinus truncatus – SCHÜTT 1987: 243–244

17a. *Bulinus truncatus contortus* (Michaud, 1829)

Physa contorta – MARTENS 1889: 232, table III

Physa contorta – SEIDL 1978: 173

17b. *Bulinus truncatus rivularis* (Philippi, 1836)

Bulinus (Isidora) truncatus rivularis – BANK 2006: 58

Bulinus (Isidora) truncatus rivularis – GLÖER & HIRSCHFELDER 2019: 22, table 1

Bulinus (Isidora) truncatus rivularis – BANK & NEUBERT 2017: 42

Remarks: SCHÜTT (1987) discussed the ways of introduction of *B. truncatus* to the island of Crete and mentioned that his work was the first to report the species from Crete. However, this statement was incorrect. The species *B. truncatus* (Audouin, 1827) had been previously reported as “*Physa brocchii* Ehrenb.” from Crete by WESTERLUND & BLANC (1879), more than a century before SCHÜTT (1987). Furthermore, BANK (2006) and BANK & NEUBERT (2017) consid-

ered only the subspecies *B. truncatus rivularis* to live in Crete. However, the subspecies *B. truncatus contortus* had been previously reported by MARTENS (1889) as well. The identity of the (sub)species of *Bulinus* living in Crete and the means of introduction require further investigation.

Family Planorbidae Rafinesque, 1815**Genus *Planorbis* Müller, 1773****18. *Planorbis atticus* Bourguignat, 1852**

Planorbis atticus – RAULIN 1869: 987

Planorbis Atticus – HESSE 1883: 80

Planorbis atticus – MEIER-BROOK 1976: 110

Planorbis atticus – SEIDL 1978: 174

Planorbis planorbis (?) *atticus* – FRANK 1987: 114

Planorbis (Planorbis) atticus – BANK 2006: 58

Planorbis (Planorbis) atticus – GLÖER & HIRSCHFELDER 2019: 22, table 1

Remarks: GLÖER & HIRSCHFELDER (2015) mentioned that MEIER-BROOK (1976) possibly misidentified a specimen of *Planorbis cretensis* Glöer et Hirschfelder, 2015 from Crete as *P. atticus*. Since, this information cannot be validated, I considered that the specimen of MEIER-BROOK (1976) belonged to *P. atticus*. FRANK (1987) listed the “small subspecies *atticus* (Bourguignat, 1852)” mentioned by SEIDL (1978) under *Planorbis planorbis* (Linnaeus, 1758). Since, no other record of *P. planorbis* from Crete exists, and previous publications (BANK 2006, BANK & NEUBERT 2017) did not mention the species from Crete, I assume that the species that FRANK (1987) referred to is *P. atticus*. *P. atticus* is endemic to Greece, its range includes central Greece, the Ionian islands, Andros island in the Cyclades and the island of Crete (GLÖER & PEŠIĆ 2010, GEORGOPOULOU et al. 2016b). In Crete the species is known from a stream and the outflow of lake Kournas.

19. *Planorbis cretensis* Glöer et Hirschfelder, 2015

Planorbis cretensis GLÖER & HIRSCHFELDER 2015: 110–111, fig. 1

Planorbis (Planorbis) cretensis – BANK & NEUBERT 2017: 42

Planorbis (Planorbis) cretensis – GLÖER & HIRSCHFELDER 2019: 22, table 1

Remarks: The information on the species distribution is limited. More research on the relationship with its congeneric species is required. *P. cretensis* is a Cretan endemic species known from a spring and the outflow of Lake Kournas (GLÖER & HIRSCHFELDER 2015, 2019).

Genus *Anisus* Studer, 182020. *Anisus leucostoma* (Millet, 1813)

Anisus (*Anisus*) *leucostoma* – BANK 2006: 59

Anisus (*Anisus*) *leucostoma* – BANK & NEUBERT 2017: 43

Anisus (*Anisus*) *leucostoma* – GLÖER & HIRSCHFELDER 2019: 22, table 1

Remarks: Although listed by BANK (2006), BANK & NEUBERT (2017) and subsequently by GLÖER & HIRSCHFELDER (2019), no literature record before BANK (2006) could be found and according to GLÖER (2019) the species is not present in Greece or Crete. Nevertheless, as I considered the list of BANK (2006) a reliable source, I retained *A. leucostoma* in the species list. Further investigation is suggested in order to validate the species presence in Crete.

Genus *Gyraulus* Charpentier, 183721. *Gyraulus parvus* (Say, 1817)

Planorbis glaber – MARTENS 1889: 232, table 3

Planorbis glaber – SEIDL 1978: 173

Remarks: *P. glaber* is a junior subjective synonym of *Gyraulus laevis* (Alder, 1838), formerly considered a European native species. Recently, *G. laevis* became a synonym of *G. parvus*, a North American species, under the light of molecular analyses (see LORENCOVÁ et al. 2021). “*G. laevis*” and *G. parvus* belong to the same species-level clade in the phylogenetic tree, but the former constitutes a European race with a North American origin and the latter a North American race (LORENCOVÁ et al. 2021). LORENCOVÁ et al. (2021) hypothesized that “*G. laevis*” is an early introduction of the North American race into Europe 500 years ago or earlier, while the North American race is a recent introduction of *G. parvus* into Europe. GLÖER (2024) rejected this synonymy, basing his opinion on differences between the two species anatomy and ecology. Further research is needed to clarify the possible distinctness between *G. laevis* and *G. parvus*, as well as, the species status in Crete.

Genus *Armiger* Hartmann, 184322. *Armiger crista* (Linnaeus, 1758)

Armiger crista – MAASSEN 1992: 94

Gyraulus (*Armiger*) *crista* – BANK 2006: 59

Remarks: The species was not mentioned from Crete either by BANK & NEUBERT (2017) or GLÖER & HIRSCHFELDER (2019). In Crete *A. crista* is known to live in rivers (MAASSEN 1992).

Genus *Segmentina* Fleming, 181823. *Segmentina nitida* (Müller, 1774)

Planorbis nitidus – MARTENS 1889: 189, 232, table 3

Planorbis nitidus – SEIDL 1978: 173

Segmentina nitida – BANK 2006: 59

Segmentina nitida – BANK & NEUBERT 2017: 45

Segmentina nitida – GLÖER & HIRSCHFELDER 2019: 22, table 1

Remarks: *S. nitida* was first mentioned from western Crete by MARTENS (1889). Subsequent references of the species from Crete were probably based on the species list given by MARTENS (1889).

24. *Ancylus fluviatilis* Müller, 1774

Ancylus fluviatilis – SCHÜTT 1982: 521

Ancylus fluviatilis – BANK 2006: 59

Ancylus fluviatilis – GLÖER & HIRSCHFELDER 2019: 22, table 1

Remarks: GLÖER & HIRSCHFELDER (2019) erroneously put the author’s name in brackets [*Ancylus fluviatilis* (Müller, 1774)]. The species was not mentioned by BANK & NEUBERT (2017). In Crete *A. fluviatilis* has been reported from springs and streams (SCHÜTT 1982, GLÖER & HIRSCHFELDER 2019).

Class Bivalvia Linnaeus, 1758

Subclass Autobranchia Grobben, 1894

Order Sphaeriida Lemer, Bieler et Giribet 2019

Superfamily Sphaerioidea Deshayes, 1855 (1820)

Family Sphaeriidae Deshayes, 1855 (1820)

Subfamily Sphaeriinae Deshayes, 1855 (1820)

Genus *Sphaerium* Scopoli, 177725. *Sphaerium lacustre* (Müller, 1774)

Sphaerium lacustre – MARTENS 1889: 232, table III

Sphaerium lacustre – SEIDL 1978: 173

Remarks: *S. lacustre* has not been reported from Crete since MARTENS (1889), as SEIDL (1978) only reproduced Martens’ list. The species was not mentioned from Crete by BANK (2006).

Genus *Euglesa* Jenyns, 183226. *Euglesa casertana* (Poli, 1791)

Pisidium Casertanum (*Cardium*) – RAULIN 1869: 983

Pisidium casertanum – WESTERLUND & BLANC 1879: 144

Pisidium Casertanum – HESSE 1883: 78

Pisidium fossarinum var. *ovale* – MARTENS 1889: 232, table III

Pisidium casertanum – WESTERLUND 1890: 27–28



Pisidium casertanum – SEIDL 1978: 173

Pisidium fossarinum var. *ovale* – SEIDL 1978: 173

Remarks: *E. casertana* has not been reported from Crete in recent years. I could not trace the name “*Pisidium fossarinum* var. *ovale* Cless.” in the literature or available online databases e.g. MOLLUSCABASE (2024a) or MUSSELp (<https://mussel-project.uwsp.edu/>) except from the publications of MARTENS (1889) and SEIDL (1978). Nevertheless, I considered it as a synonym of *E. casertana* as the name *Pisidium fossarinum* Clessin is a synonym of *E. casertana*.

Genus *Odhneripisidium* Kuiper, 1962

27. *Odhneripisidium annandalei* (Prashad, 1925)

Pisidium vincentianum – VAN REGTEREN 1957: 132, table V

Pisidium annandalei – KUIPER 1962b: 7

Pisidium annandalei – KUIPER 1981: 81

Pisidium (*Odhneripisidium*) *annandalei* – BANK 2006: 61

Remarks: The name *P. vincentianum* is a junior subjective synonym of *Odhneripisidium stewarti* (Preston 1909) (MOLLUSCABASE 2024c). However, I followed KUIPER (1981) who considered that *P. vincentianum* mentioned by VAN REGTEREN (1957) is *P. annandalei*.

DOUBTFUL TAXA

Theodoxus anatolicus (Récluz, 1841)

Theodoxus (*Neritaea*) *anatolicus* – BANK & NEUBERT 2017: 3

Theodoxus (*Neritaea*) *anatolicus* – GLÖER & HIRSCHFELDER 2019: 22, table 1

Remarks: There are strong indications that *T. anatolicus* is restricted to south-western Anatolia (SANDS et al. 2019, 2020) and thus its presence in Crete is doubtful. I do not consider that the species lives in Crete. Nevertheless, more research focused on the populations of *Theodoxus* from the island of Crete is needed in order to assess its true diversity.

Theodoxus baeticus (Lamarck, 1822)

Neritina Boetica – RAULIN 1869: 988

Neritina Boetica – HESSE 1883: 80

Neritina boeotica – SEIDL 1978: 174

Remarks: *T. baeticus* is widespread throughout the Mediterranean (see SANDS et al. 2020 and references therein), but no recent study verifies its presence in Crete. The single record of the species in Crete was from RAULIN (1869). Subsequent authors, i.e. HESSE (1883) and SEIDL (1978), reproduced Raulin’s species list without adding new field data. In addition, the study of the phylogeny of the genus *Theodoxus*

revealed that the specimens from Crete belonged to *T. fluviatilis* (SANDS et al. 2020). Thus, its presence remains to be confirmed (or rejected) by new studies.

Theodoxus peloponensis (Récluz, 1841)

Neritina peloponnesiaca – MARTENS 1889: 232, table III

Neritina peloponnesiaca – SEIDL 1978: 173

Remarks: Although *T. peloponensis* is an accepted taxon name in MOLLUSCABASE (2024d), there were suggestions that the name was a synonym of *T. baeticus* (BANK 2006) and recently its status was considered dubious (SANDS et al. 2020).

Planorbis rotundatus Poiret, 1801 (taxon inquirendum)

Planorbis rotundatus – RAULIN 1869: 987

Planorbis rotundatus – HESSE 1883: 80

Planorbis rotundatus – MARTENS 1889: 189, 232, table III

Planorbis rotundatus – SEIDL 1978: 173

Remarks: The species *P. rotundatus* is currently classified as a taxon inquirendum (MOLLUSCABASE 2021).

Ancylus capuloides Jan in Porro, 1838

Ancylus capuloides – MARTENS 1889: 189

Ancylus capuloides – SEIDL 1978: 173

Remarks: SCHÜTT (1982) mentioned that the species *A. capuloides* was known from Crete. Following this, FRANK (1987) suggested that *A. capuloides* mentioned by SEIDL (1978) referred to the species *Ancylus fluviatilis* f. *gibbosus* Bourguignat, 1853 (see below). However, the combination is superseded (MOLLUSCABASE 2024e) and the accepted name *A. gibbosus* Bourguignat, 1853 is considered as a taxon inquirendum (MOLLUSCABASE 2024f). In addition, FRANK (1987) mistakenly mentions as citation “Seidl 1968”, the correct being “Seidl 1978”. At present, *A. capuloides* is known from Italy (MOLLUSCABASE 2024g). Field studies and a combined effort of morphological and genetic approach is required in order to understand the taxonomic position of *Ancylus* of Crete.

Ancylus gibbosus Bourguignat, 1853 (taxon inquirendum)

Ancylus fluviatilis f. *gibbosus* – FRANK 1987: 114

Remarks: The species *A. gibbosus* is currently classified as a taxon inquirendum (MOLLUSCABASE 2024f). Further investigation is required to disentangle the taxon’s status.

Bythinella sp.

Bythinia similis (*Cyclostoma*) – RAULIN 1869: 987

Bythinia similis (?) – HESSE 1883: 80

Bithynia similis – SEIDL 1978: 174

Remarks: RAULIN (1869) probably refers to the species *Cyclostoma simile* Draparnaud, 1805 which is currently a synonym of *Mercuria similis* (Draparnaud, 1805). However, it is unlikely that the record of “*Bythinia similis* (*Cyclostoma*)” by RAULIN (1869) refers to *M. similis* since the species is known from the Mediterranean coast of France and Spain and the island of Mallorca (GLÖER et al. 2015) and the genus *Mercuria* is restricted to the western Mediterranean, north-western Africa and Atlantic coastal regions (see GLÖER et al. 2015, BOETERS & FALKNER 2017, MILLER et al. 2023 for details).

Bythinella viridis (Poiret, 1801)

Bythinia viridis (*Bulimus*) var. *inflata* ? – RAULIN 1869: 987

Bythinia viridis (?) var. *conflata* ? – HESSE 1883: 80

Bithynia viridis: SEIDL 1978: 174

Remarks: *Bythinella viridis* is endemic to France (PRIE & CUCHERAT 2021), and therefore the species presence on the island is doubtful.

Adriohydrobia gagatinella (Küster, 1852)

Hydrobia kutschigi – FUCHS & KÄUFEL 1934: 72

Remarks: Currently, *A. gagatinella* is known from Montenegro, Croatia and possibly Albania (WILKE & FALNIOWSKI 2001, BANK & NEUBERT 2017), and there are no records of the species from Greece. FUCHS & KÄUFEL (1934) note that the Cretan form differs from the type specimen of *H. kutschigi*, currently known as *A. gagatinella*. The Cretan form is slimmer, with rapidly increasing whorls and a smaller aperture (FUCHS & KÄUFEL 1934). In the same

publication it also mentioned that A. J. Wagner, who collected the specimen, confirms the species but considers it a separate form. Acknowledging the above information, I assume that the authors misidentified the specimen from Crete as *A. gagatinella* and therefore the species presence in Crete is highly unlikely.

Peregriana labiata (Rossmässler, 1835) (taxon inquirendum)

Radix labiata – GLÖER & HIRSCHFELDER 2019: 22, table 1

Remarks: A single mention of the species from the outflow of Lake Kournas in western Crete is provided by GLÖER & HIRSCHFELDER (2019). It is possible that the specimens found by GLÖER & HIRSCHFELDER (2019) belong to *A. lagotis* which was also found in Lake Kournas by AKSENOVA et al. (2018). It is currently considered as taxon inquirendum (MOLLUSCABASE 2024h) and new field data will assist the discovery of which lymnaeid species live(s) in Crete.

Pisidium creticum Clessin (uncertain taxon)

Pisidium creticum – MARTENS 1889: 232, table III

Pisidium creticum – SEIDL 1978: 173

Remarks: There is no record of the name “*Pisidium creticum* Cless.” in any publication or relevant online database e.g. MOLLUSCABASE (2024a) or MUSSELp (<https://mussel-project.uwsp.edu/>) except from the publications of MARTENS (1889) and SEIDL (1978). Also, I was not able to retrieve the publication that contains the taxon’s original description. The taxon’s current taxonomic status is uncertain and further research is required in order to reveal its true identity.

DISCUSSION – GENERAL REMARKS

The current annotated checklist is the most recent and up-to-date contribution to our knowledge of the freshwater molluscs of Crete. The in-depth study of the available literature revealed that at least 24 species and two subspecies of gastropods, and three bivalve species have been documented by previous authors to live in Crete. The results show that the freshwater gastropods and bivalves of Crete have been sporadically studied in the past, and only recently have there been efforts to research the island’s freshwater gastropods (e.g. SZAROWSKA et al. 2014, GLÖER & HIRSCHFELDER 2015, 2019, LAMPRI et al. 2022). The geographic distribution of localities indicates that field sampling was focused on certain water bodies, e.g. Lake Kournas and Almyros river in Western Crete, while certain areas such as the moun-

tain massifs of the island have been overlooked (see Fig. 1).

The number of freshwater molluscs known from Crete has increased compared to the most recent lists provided by previous authors (BANK 2006, BANK & NEUBERT 2017, GLÖER & HIRSCHFELDER 2019). This was expected as new species were described in the last decade (e.g. GLÖER & HIRSCHFELDER 2015, 2019). Of the 27 species, eight are endemic to Crete, i.e. *Bithynia candiota*, *B. cretensis*, *Pseudamnicola brachia*, *P. occultus*, *Bythinella cretensis*, *B. sitiensis*, *Valvata kournasi* and *Planorbis cretensis*. In the case of *E. maltzani*, recent molecular analyses showed that the species is not endemic to Crete as previously thought (SZAROWSKA et al. 2014). The islands paleogeographic history and landscape complexity, justify the high



number of (endemic) species when compared to other Greek islands such as Andros (GEORGOPOULOU et al. 2016b), Kos (AVRITHIS & FISCHER 2022), Lesvos (BANK 1988) and Samos (BANK & MAASSEN 1998). Nevertheless, more research is necessary in order to make safe comparisons since our knowledge of freshwater molluscs from the Greek islands is incomplete.

The alien species *P. antipodarum* was recorded for the first time from Crete and in general from insular Greece (LAMPRI et al. 2017). The presence of this alien species, its current population status and distribution in Crete need to be investigated. Another presumably alien species for Europe, namely *G. parvus*, has been documented from the island under the name “*P. glaber*” (MARTENS 1889, SEIDL 1978). At the moment two races, i.e. “*G. laevis*” and *G. parvus*, are placed under the name *G. parvus* (LORENCOVÁ et al. 2021). However, without the study of fresh material, it is impossible to know which race lives and when it arrived in Crete. I urge for a modern investigation of the species from the island of Crete in order to understand its history and assist to the untangling of its taxonomic status.

More new species are expected to be described from Crete as indicated by recent integrative analyses (see LAMPRI et al. 2022). The genus *Bythinella* has been investigated by two independent research groups in Crete (SZAROWSKA et al. 2016a, 2016b, LAMPRI et al. 2022). Cumulative results of these previous studies indicate the presence of at least 5 *Bythinella* spp. in the island, but so far, they have refrained from naming the species (see SZAROWSKA et al. 2016a, LAMPRI et al. 2022). The species *B. cretensis*, *B. rethymnonensis* and *B. sitiensis* are included within the aforementioned identified species. I have refrained from assigning the records from SZAROWSKA et al. (2016a) and LAMPRI et al. (2022) under a species name, nevertheless their records were included in Figure 1.

Similarly, the phylogeny of the genus *Pseudamnicola* has been analyzed by SZAROWSKA et al. (2016b) and

LAMPRI et al. (2022, 2024). The paper of SZAROWSKA et al. (2016b) focused on the Aegean islands and included a single location from Crete, while LAMPRI et al. (2022) provided a thorough study of the genus exclusively from Crete. The latest comprehensive phylogeny of the genus *Pseudamnicola* across the Mediterranean, included species from Crete. Molecular analyses suggest that possibly two species of *Pseudamnicola* live in Crete, one is attributed to *P. occultus* (LAMPRI et al. 2024), but the other one cannot be safely attributed to *P. brachia* (LAMPRI et al. 2022, LAMPRI et al. 2024) the other species of *Pseudamnicola* already known from the island. Furthermore, LAMPRI et al. (2024) suggests, that the species *Pseudamnicola chia* (von Martens, 1889) may also live in Crete, however this requires validation from morphological and anatomical studies.

Our knowledge of the freshwater molluscan fauna of Crete is by far complete. Field studies focusing on both previously searched localities as well as new ones are highly desired. The study of the species ecological preferences, their phylogenetic relationships and biogeographical affinities will add to our understanding of the freshwater fauna of the island. This work aims to become a starting point for modern research efforts on the freshwater molluscan taxonomy and ecology, as well as, contribute to conservation planning of the Cretan fresh waters.

ACKNOWLEDGEMENTS

I would like to thank Dr. THOMAS NEUBAUER and Dr. MAXIM V. VINARSKI for assistance on nomenclatural issues. The research was implemented with support from the scholarship program for young scientists of WWF Greece – 2024–2026.

SUPPLEMENTARY MATERIALS

Supplementary Table S1 is available at <https://www.foliamalacologica.com/SuppFile/197273/1/>.

REFERENCES

- ABEL C. 1818. Narrative of a journey in the interior of China, and of a voyage to and from that country, in the years 1816 and 1817; containing an account of the most interesting transactions of Lord Amherst's embassy to the court of Peking, and observations on the countries which it visited. Illustrated by maps and other engravings. Longman, Hurst, Rees, Orme & Brown, London. <https://doi.org/10.5962/bhl.title.110026>
- ADAMS H., ADAMS A. 1853–1858. The genera of recent Mollusca arranged according to their organizations. 2 Vols. Van Voorst, London. <https://doi.org/10.5962/bhl.title.4772>
- ALDER J. 1838. Supplement to a catalogue of the land and fresh-water Testaceous Mollusca, found in the vicinity of Newcastle. Transactions of the Natural History Society of Northumberland, Durham and Newcastle upon Tyne 2: 337–342.
- AKSENOVA O. V., BOLOTOV I. N., GOFAROV M. Y., KONDAKOV A. V., VINARSKI M. V., BESPALAYA Y. V., KOLOSOVA Y. S., PALATOV D. M., SOKOLOVA S. E., SPITSYN V. M., TOMILOVA A. A., TRAVINA O. V., VIKHREV I. V. 2018. Species richness, molecular taxonomy and biogeography of the radicine pond snails (Gastropoda:



- Lymnaeidae) in the Old World. *Scientific Reports* 8: 11199.
<https://doi.org/10.1038/s41598-018-29451-1>
- ALBRECHT C., HAUFFE T., SCHREIBER K., TRAJANOVSKI S., WILKE T. 2009. Mollusc biodiversity and endemism in the potential ancient lake Trichonis, Greece. *Malacologia* 51: 357–375.
<https://doi.org/10.4002/040.051.0209>
- ALBRECHT C., HAUFFE T., SCHREIBER K., WILKE T. 2012. Mollusc biodiversity in a European ancient lake system: lakes Prespa and Mikri Prespa in the Balkans. *Hydrobiologia* 682: 47–59.
<https://doi.org/10.1007/s10750-011-0830-1>
- AUDOUIN V. [1827] 1828. Explication sommaire des planches de Mollusques de l’Égypte et de la Syrie publiées par J. C. Savigny. In: Description de l’Égypte ou recueil des observations et des recherches qui ont été faites en Égypte pendant l’expédition de l’armée française, publié par les ordres de sa majesté l’empereur Napoléon le grand. 2ème édition, dédiée au roi. Histoire Naturelle, Animaux invertébrés 22. Panckouke, Paris, pp. 117–212. [1827 on title page is inaccurate]
- AVRITHIS A. I., FISCHER W. 2022. The freshwater molluscs of Kos (Greece) and notes on their ecological value. *Nachrichtenblatt der Ersten Vorarlberger Malakologischen Gesellschaft* 29: 79–86.
- BANK R. A. 1988. Die Molluskenfauna der griechischen Insel Lesbos (=Mytilini). *Basteria* 52: 61–76.
- BANK R. A. 2006. Towards a catalogue and bibliography of the freshwater Mollusca of Greece. *Heldia* 6: 51–86.
- BANK R. A., MAASSEN W. J. M. 1998. Beiträge zur Molluskenfauna der Präfektur Samos (Griechenland, östlichen Ägäis). *De Kreukel* 34: 45–80.
- BANK R. A., NEUBERT E. 2017. MolluscaBase, Checklist of the land and freshwater Gastropoda of Europe. Last update: July 16th, 2017, 1–170. Available online at: <https://molluscabase.org/aphia.php?p=sourcetails&id=279050> (accessed 2 October 2024).
- BOETERS H. D., FALKNER G. 2017. The genus *Mercuria* Boeters, 1971 in France (Gastropoda: Caenogastropoda: Hydrobiidae). *West-European Hydrobiidae*, Part 13. *Zoosystema* 39: 227–261.
<https://doi.org/10.5252/z2017n2a4>
- BOLANAKIS G., PARAGKAMIAN S., CHATZAKI M., KOTITSA N., KARDAKI L., TRICHAS A. 2024. The conservation status of the Cretan endemic arthropods under Natura 2000 network. *Biodiversity and Conservation* 33: 2635–2662.
<https://doi.org/10.1007/s10531-024-02877-y>
- BOUCHET P., BARY S., HEROS V., MARANI G. 2016 How many species of molluscs are there in the world’s oceans, and who is going to describe them? In: HÉROS V., STRONG E., BOUCHET P. (eds). *Tropical Deep-Sea Benthos* volume 29. Muséum national d’Histoire naturelle. Paris, pp. 9–24.
- BOURGUIGNAT J. -R. 1852. Testacea novissima quæ Cl. de Saulcy in itinere per Orientem annis 1850 et 1851, collegit. *Baillièrè, Lutetia*, pp. [1], 5–31.
- BOURGUIGNAT J. -R. 1853. Notice sur le genre *Ancylus*, suivi d’un catalogue synonymique des espèces de ce genre. *Journal de Conchyliologie* 4 (1): 55–66; 4 (2): 169–199.
- BUNJE P. M. E., LINDBERG D. R. 2007. Lineage divergence of a freshwater snail clade associated with post-Tethys marine basin development. *Molecular Phylogenetics and Evolution* 42: 373–387.
<https://doi.org/10.1016/j.ympev.2006.06.026>
- CHARPENTIER J. DE 1837. Catalogue des mollusques terrestres et fluviatiles de la Suisse. *Nouveaux Mémoires de la Société Helvétique des Sciences Naturelles* 1(2): 1–28.
- COX L. R. 1960. Thoughts on the classification of the Gastropoda. *Proceedings of the Malacological Society of London* 33: 239–261.
- CUVIER G. 1795. Second Mémoire sur l’organisation et les rapports des animaux à sang blanc, dans lequel on traite de la structure des Mollusques et de leur division en ordre, lu à la société d’Histoire Naturelle de Paris, le 11 prairial an troisième. *Magasin Encyclopédique, ou Journal des Sciences, des Lettres et des Arts* 2: 433–449.
- DESHAYES G. P. 1855. Catalogue of the Conchifera or bivalve shells in the collection of the British Museum. *British Museum, London, Part II, Petricoladae (concluded), Corbiculadae*. Taylor & Francis, London, pp. 217–292 [title page dated “1854”; 12 May 1855].
- DRAPARNAUD J. P. R. 1805. Histoire naturelle des Mollusques terrestres et fluviatiles de la France. *Louis Colas, Paris*.
<https://doi.org/10.5962/bhl.title.12856>
- FALNIOWSKI A., HELLER J., CAMERON R. A. D., POKRYSZKO B. M., OSIKOWSKI A., RYSIEWSKA A., HOFMAN S. 2020. Melanopsidae (Caenogastropoda: Cerithioidea) from the eastern Mediterranean: another case of morphostatic speciation. *Zoological Journal of the Linnean Society* 190: 483–507.
<https://doi.org/10.1093/zoolinnean/zlz160>
- FÉRUSSAC J. B. L. D’AUDEBARD DE, FÉRUSSAC A. E. J. P. F. D’AUDEBARD DE 1807. Essai d’une méthode conchyliologique appliquée aux Mollusques fluviatiles et terrestres d’après la considération de l’animal et de son test. Nouvelle édition augmentée d’une synonymie des espèces les plus remarquables, d’une table de concordance systématique de celles qui ont été décrites par Geoffroy, Poiret et Draparnaud, avec Müller et Linné, et terminée par un catalogue d’espèces observées en divers lieux de la France. *Delance, Paris*.
- FITZINGER L. J. 1833. Systematisches Verzeichniß der im Erzherzogthume Oesterreich vorkommenden Weichthiere, als Prodrum einer Fauna derselben. *Beiträge zur Landeskunde Oesterreichs’s unter der Enns* 3: 88–122.
<https://doi.org/10.5962/bhl.title.10037>
- FLEMING J. 1818. *Conchology*. *Encyclopaedia Britannica*. Supplement to the fourth, fifth and sixth editions. *Constable, Edinburgh*.
- FLEMING J. 1822. The philosophy of zoology, a general view of the structure, functions and classification of animals, 2. *Constable & Co., Edinburgh*.
<https://doi.org/10.5962/bhl.title.24597>



- FRANK C. 1987. Beitrag zur Kenntnis der Molluskenfauna der östlichen Mittelmeerländer. Teil III (1): Zusammenfassung der Sammelergebnisse der Jahre 1982–1985 vom kontinentalen Griechenland, dem Peloponnes, den Nördlichen Sporaden sowie einigen Inseln des Ionischen und Ägäischen Meers. Malakologische Abhandlungen aus dem Staatlichen Museum für Tierkunde Dresden 12: 101–124.
- FRANK C. 1988. Über Molluskenfunde von den Inseln Chios, Kreta und Zypern sowie vom griechischen Festland (Thessalien). Bericht des Naturwissenschaftlich-Medizinischen Vereins in Innsbruck 75: 81–90.
- FRÝDA J. 1998. Some new and better recognized Devonian gastropods from the Prague Basin (Bohemia): part II. Vestník Ceskeho Geologickeho Ustavu 73: 355–363.
- FUCHS A., KÄUFEL F. 1934. Ergebnisse einer zoologischen Studien- und Sammelreise nach Griechenland, namentlich nach den Inseln des Ägäischen Meeres. IV. Land- und Süßwassermollusken aus Griechenland und von den Inseln des Ägäischen Meeres. Sitzungsberichte der Akademie der Wissenschaften in Wien, Mathematisch-naturwissenschaftliche Klasse, Abteilung I, 143(1/2): 71–90.
- FUCHS A., KÄUFEL F. 1936. Anatomische und systematische Untersuchungen an Land- und Süßwasserschnecken aus Griechenland und von den Inseln des Ägäischen Meeres. Archiv für Naturgeschichte, Neue Folge 5(4): 541–662.
- GASSIES J. B. 1870. Note sur le *Physa capillata*, de l'île de Crète. Journal de Conchyliologie 18(3): 306–307.
- GEORGOPOULOU E., GLÖER P., SIMAIAKIS S. 2016b. Contribution to the freshwater gastropods of the island of Andros in the northern Cyclades (Aegean islands, Greece). Folia Malacologica 24: 275–286. <https://doi.org/10.12657/folmal.024.023>
- GEORGOPOULOU E., NEUBAUER T. A., HARZHAUSER M., KROH A., MANDIC O. 2016a. Distribution patterns of European lacustrine gastropods: a result of environmental factors and deglaciation history. Hydrobiologia 775: 69–82. <https://doi.org/10.1007/s10750-016-2713-y>
- GLAUBRECHT M. 1993. Mapping the diversity: geographical distribution of the freshwater snail *Melanopsis* (Gastropoda: ? Cerithioidea: Melanopsidae) with focus on its systematics in the Mediterranean Basin. Mitteilungen Hamburgische Zoologische Museum und Institut 90: 41–97.
- GLÖER P. 2019. The freshwater gastropods of the West-Palaeartics. Identification key, Anatomy, Ecology, Distribution Volume I. Self-published, Germany.
- GLÖER P. 2024. *Gyraulus laevis* and *G. parvus* (Mollusca: Gastropoda), two distinct species. Ecologica Montenegrina 71: 237–239. <https://doi.org/10.37828/em.2024.71.24>
- GLÖER P., BOETERS H. D., WALTHER F., PETER G., HANS D. B., FRANK W. 2015. Species of the genus *Mercuria* Boeters, 1971 (Caenogastropoda: Truncatelloidea: Hydrobiidae) from the European Mediterranean region, Morocco and Madeira, with descriptions of new species. Folia Malacologica 23: 279–291. <https://doi.org/10.12657/folmal.023.024>
- GLÖER P., FISCHER W. 2022. Eine neue *Radomaniola* Szarowska 2006 von der griechischen Insel Kos (Gastropoda: Hydrobiidae). Nachrichtenblatt der Ersten Vorarlberger Malakologischen Gesellschaft 29: 69–71.
- GLÖER P., HIRSCHFELDER H. J. 2015. Description of *Planorbis cretensis* n. sp. from Crete (Gastropoda: Planorbidae). Ecologica Montenegrina 2: 109–111. <https://doi.org/10.37828/em.2015.2.13>
- GLÖER P., HIRSCHFELDER H. J. 2019. New freshwater molluscs from Crete, Greece (Gastropoda: Hydrobiidae, Bythinellidae, Valvatidae). Ecologica Montenegrina 20: 10–23. <https://doi.org/10.37828/em.2019.20.2>
- GLÖER P., HIRSCHFELDER H. J. 2020. Some new *Bythinella* spp. from southern Greece (Gastropoda: Bythinellidae). Ecologica Montenegrina 30: 60–67. <https://doi.org/10.37828/em.2020.30.5>
- GLÖER P., MAASSEN W. J. M. 2009. Three new species of the family Bithyniidae from Greece (Gastropoda: Bithyniidae). Mollusca 27: 41–48.
- GLÖER P., PEŠIĆ V. 2010. The *Planorbis* species of the Balkans with the description of *Planorbis vitojensis* n. sp. (Gastropoda: Planorbidae). Journal of Conchology 40: 249–257.
- GLÖER P., PORFYRIS A. 2022. Greece, a second hotspot of *Bythinella* spp. (Gastropoda: Bythinellidae) in Europe, with the description of two new species. Spira 8: 27–37.
- GOLIKOV A. N., STAROBOGATOV Y. I. 1975. Systematics of prosobranch gastropods. Malacologia 15: 185–232.
- GRAY J. E. 1840. Shells of molluscous animals. In: Synopsis of the contents of the British Museum. G. Woodfall, London, pp. 105–152.
- GRAY J. E. 1843. Catalogue of the species of Mollusca and their shells, which have hitherto been recorded as found at New Zealand, with the description of some lately discovered species. In: DIEFFENBACH E. (ed.). Travels in New Zealand; with contributions to the geography, geology, botany, and natural history of that country, vol. 2. Murray, London, pp. 228–265.
- GROBEN K. 1894. Zur Kenntnis der Morphologie, der Verwandtschaftsverhältnisse und des Systems der Mollusken. Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften. Mathematisch-Naturwissenschaftliche Classe 103: 61–86.
- HALDEMAN S. S. 1843. Physadae. A monograph of the freshwater univalve Mollusca of the United States, including notices of species in other parts of North America. 6. J. Dobson, Philadelphia. <https://doi.org/10.5962/bhl.title.3969>
- HARTMANN J. D. W. 1843. Erd- und Süßwasser-Gasteropoden der Schweiz. Mit Zugabe einiger merkwürdigen exotischen Arten. Scheitlin & Zollikofer, St. Gallen, pp. 157–204.

- HESSE P. 1883. Beiträge zur Molluskenfauna Griechenlands. II. Jahrbücher der Deutschen Malakozologischen Gesellschaft 10: 73–81.
<https://www.biodiversitylibrary.org/item/86735>
- HOFMAN S., GREGO J., FEHÉR Z., ERŐSS Z. P., RYSIEWSKA A., OSIKOWSKI A., FALNIOWSKI A. 2021. New data on the valvatiform-shelled Hydrobiidae (Caenogastropoda, Truncatelloidea) from southern Greece. *ZooKeys* 1062: 31–47.
<https://doi.org/10.3897/zookeys.1062.64746>
- JAECKEL S. G. A. 1967. Gastropoda. In: ILLIES J. (ed.). *Limnofauna Europaea*. Gustav Fischer Verlag, Stuttgart, pp. 89–104.
- JENYNS L. 1832. A monograph on the British species of *Cyclas* and *Pisidium*. *Transactions of the Cambridge Philosophical Society* 4: 289–312.
- KOBELT W. 1898–1899. *Iconographie der Land- & Süßwasser-Mollusken mit vorzüglicher Berücksichtigung der europäischen noch nicht abgebildeten Arten von E. A. Rossmässler*. VIII. Band. C. W. Kreidel, Wiesbaden.
- KOKEN E. 1896. Die Gastropoden der Trias um Hallstadt. *Jahrbuch der Kaiserlich-Königlichen Geologischen Reichsanstalt* 46: 37–126.
- KOUGIOUMOUTZIS K., KOKKORIS I. P., PANITSA M., TRIGAS P., STRID A., DIMOPOULOS P. 2020. Plant diversity patterns and conservation implications under climate-change scenarios in the Mediterranean: The case of Crete (Aegean, Greece). *Diversity* 12: 270.
<https://doi.org/10.3390/d12070270>
- KUIPER J. G. J. 1962a. Étude critique de *Pisidium vinctianum*. *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique, Biologie* 38(46): 1–19.
- KUIPER J. G. J. 1962b. Note sur la systématique des pisidies. *Journal de Conchyliologie* 102: 53–57.
- KUIPER J. G. J. 1981. The distribution of *Pisidium tenuilineatum* Stelfox and *Pisidium annandalei* Prasad in the Mediterranean area. *Basteria* 45: 79–84.
- KÜSTER H. C. 1852–1853. Die Gattungen *Paludina*, *Hydrocaena* und *Valvata*. In *Abbildungen nach der Natur mit Beschreibungen*. Systematisches Conchylien-Cabinet von Martini und Chemnitz, 2. Edition. Bauer & Raspe, Nürnberg.
- LAMARCK J.-B. M. DE 1822. *Histoire naturelle des animaux sans vertèbres*. Volume 6, 2nd part. Lamarck, Paris.
- LAMPRI P. N., BOURANTA C., RADEA C., PARMAKELIS A. 2022. Hidden diversity revealed in the freshwater snails, *Bythinella* and *Pseudamnicola*, in the Island of Crete. *Integrative Zoology* 17: 804–824.
<https://doi.org/10.1111/1749-4877.12594>
- LAMPRI P. N., RADEA C., MPOURANTA C., PARMAKELIS A. 2017. The freshwater snails of Crete: an updated list of native and invasive species. In: *Abstracts of the 10 SEFS, 2–7 July 2017, Olomouc, Czech Republic*: 45.
- LAMPRI P. N., RADEA C., PARMAKELIS A. 2024. An expanded phylogeny of the genus *Pseudamnicola* (Gastropoda; Truncatelloidea; Hydrobiidae) across the Mediterranean Basin. *Integrative Zoology* 19: 846–862.
<https://doi.org/10.1111/1749-4877.12833>
- LEMER S., BIELER R., GIRIBET G. 2019. Resolving the relationships of clams and cockles: dense transcriptome sampling drastically improves the bivalve tree of life. *Proceedings of the Royal Society B: Biological Sciences* 286 (1896): 20182684.
<https://royalsocietypublishing.org/doi/10.1098/rspb.2018.2684>
- LINNAEUS C. 1758. *Systema Naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis*. Tomus I. Laurentius Salvius, Holmiae.
<https://doi.org/10.5962/bhl.title.37256>
- LOCARDA. 1893. *Conchyliologie française*. [I]. Les coquilles des eaux douces et saumâtres de France. Description des familles, genres et espèces. J.-B. Baillière, Paris.
<https://doi.org/10.5962/bhl.title.12982>
- LOPES-LIMA M., RICCARDI N., URBANSKA M., KÖHLER F., VINARSKI M., BOGAN A. E., SOUSA R. 2021. Major shortfalls impairing knowledge and conservation of freshwater molluscs. *Hydrobiologia* 848: 2831–2867.
<https://doi.org/10.1007/s10750-021-04622-w>
- LORENCOVÁ E., BERAN L., NOVÁKOVÁ M., HORSÁKOVÁ V., ROWSON B., HLAVÁČ J. Č., NEKOLA J. C., HORSÁK M. 2021. Invasion at the population level: a story of the freshwater snails *Gyraulus parvus* and *G. laevis*. *Hydrobiologia* 848: 4661–4671.
<https://doi.org/10.1007/s10750-021-04668-w>
- MAASSEN W. J. M. 1992. Nieuwe Land- en Zoetwatermollusken voor het Griekse eiland Krete. *De Kreukel* 28: 93–97.
- MABILLE J. 1877. Catalogue des Paludestrines des côtes de France. *Revue et Magasin de Zoologie* (3)5: 214–222.
- MARTENS E. VON 1879. Die Gattung *Neritina*. In: KÜSTER H. C., KOBELT W., WEINKAUFF H. C. (eds). *Systematisches Conchylien-Cabinet von Martini und Chemnitz*. Neu herausgegeben und vervollständigt. Zweiten Bandes zehnte Abtheilung. (1) 1–303, pls A, 1–23; (2) 10 (285): 209–303, pl. 20–23, A, Bauer & Raspe, Nürnberg.
<https://www.biodiversitylibrary.org/page/52484536>
- MARTENS E. VON 1889. Griechische Mollusken. Gesammelt von Eberh. von Örtzen. *Archiv für Naturgeschichte* 55(1): 169–240.
- MEIER-BROOK C. 1976. The generic position of *Planorbis* (*Gyraulus*) *intermixtus* Mousson, 1874, and *Planorbis presbensis* Sturany, 1894 (Gastropoda, Basommatophora). *Basteria* 40: 107–118.
- MEULENKAMP J. E. 1985. Aspects of the late Cenozoic evolution of the Aegean region. In: STANLEY D., WEZEL F. C. (eds), *Geological evolution of the Mediterranean Basin*. Springer, New York, pp. 307–321.
https://doi.org/10.1007/978-1-4613-8572-1_15
- MICHAUD A.-L.-G. 1829. Description de plusieurs espèces nouvelles de coquilles vivantes. *Bulletin d'Histoire Naturelle de la Société Linnéenne de Bordeaux* 3: 260–276.
- MILLER J. P., DELICADO D., GARCÍA-GUERRERO F., KHALLOUFI N., RAMOS M. A. 2023. Morphology and taxonomic assessment of eight genetic clades of *Mercuria* Boeters, 1971 (Caenogastropoda, Hydrobiidae), with



- the description of five new species. *European Journal of Taxonomy* 866: 1–63.
<https://doi.org/10.5852/ejt.2023.866.2107>
- MILLET P. A. 1813. Mollusques terrestres et fluviatiles, observés dans le Département de Maine et Loire. Impr. Pavie, Angers.
- MOLLUSCABASE 2021. MolluscaBase (eds). *Planorbis rotundatus* Poiret 1801. Available online at: <https://www.molluscabase.org/aphia.php?p=taxdetails&id=1546334> (accessed 05 November 2024).
- MOLLUSCABASE 2024a. MolluscaBase (eds). Available online at: <https://www.molluscabase.org> (accessed 24 October 2024).
- MOLLUSCABASE 2024b. MolluscaBase (eds). *Eupaludestrina maltzani* (Westerlund, 1886). Available online at: <https://www.molluscabase.org/aphia.php?p=taxdetails&id=1457264> (accessed 24 October 2024).
- MOLLUSCABASE 2024c. MolluscaBase (eds). *Odhneripisidium stewarti* (Preston, 1909). Available online at: <https://www.molluscabase.org/aphia.php?p=taxdetails&id=1054126> (accessed 02 October 2024).
- MOLLUSCABASE 2024d. MolluscaBase (eds). *Theodoxus peloponensis* (Récluz, 1841). Available online at: <https://www.molluscabase.org/aphia.php?p=taxdetails&id=1544300> (accessed 05 November 2024).
- MOLLUSCABASE 2024e. MolluscaBase (eds). *Ancylus (Ancylastrum) fluviatilis* var. *gibbosus* Bourguignat, 1853. Available online at: <https://molluscabase.org/aphia.php?p=taxdetails&id=1650899> (accessed 30 September 2024).
- MOLLUSCABASE 2024f. MolluscaBase (eds). *Ancylus gibbosus* Bourguignat, 1853. Available online at: <https://www.molluscabase.org/aphia.php?p=taxdetails&id=1650891> (accessed 30 September 2024).
- MOLLUSCABASE 2024g. MolluscaBase (eds). *Ancylus capuloides* Jan, 1838. Available online at: <https://molluscabase.org/aphia.php?p=taxdetails&id=1313192> (accessed 05 November 2024).
- MOLLUSCABASE 2024h. MolluscaBase (eds). *Peregriana labiata* (Rossmässler, 1835). Available online at: <https://molluscabase.org/aphia.php?p=taxdetails&id=1288096> (accessed 05 November 2024).
- MONTFORT P. D. DE 1810. Conchyliologie systématique et classification méthodique de coquilles; offrant leurs figures, leur arrangement générique, leurs descriptions caractéristiques, leurs noms; ainsi que leur synonymie en plusieurs langues. Ouvrage destiné à faciliter l'étude des coquilles, ainsi que leur disposition dans les cabinets d'histoire naturelle. Coquilles univalves, non cloisonnées. 2. Schoell, Paris.
- MOQUIN-TANDON A. 1856. Histoire naturelle des mollusques terrestres et fluviatiles de France, 2 (6): 369–646. Baillièrè, J.-B., Paris.
<https://doi.org/10.5962/bhl.title.13098>
- MÜLLER O. F. 1773–1774. Vermium terrestrium et fluviatilium historia, seu animalium Infusoriorum, Helminthicorum et Testaceorum non marinorum succincta historia. Heineck & Faber, Havniae et Lipsiae.
<http://www.biodiversitylibrary.org/bibliography/46299#/summary>
- MÜLLER O. F. 1781. Geschichte der Perlen-Blasen. *Der Naturforscher* 15: 1–20.
- NEIBER M. T., GLAUBRECHT M. 2019. Unparalleled disjunction or unexpected relationships? Molecular phylogeny and biogeography of Melanopsidae (Caenogastropoda: Cerithioidea), with the description of a new family and a new genus from the ancient continent Zealandia. *Cladistics* 35: 401–425.
<https://doi.org/10.1111/cla.12361>
- OLIVIER G. A. 1801. Voyage dans l'Empire Othoman, l'Égypte et la Perse, fait par ordre du Gouvernement, pendant les six premières années de la République. Tome 1. Agasse, Paris.
- OLIVIER G. A. 1804. Voyage dans l'Empire Othoman, l'Égypte et la Perse, fait par ordre du Gouvernement, pendant les six premières années de la République. Tome 2. Agasse, Paris.
- PAULUCCI M. 1878. Matériaux pour servir à l'étude de la faune malacologique terrestre et fluviatile de l'Italie et de ses îles. Savy, Paris.
- PHILIPPI R. A. 1836. Enumeratio molluscorum Siciliae cum viventium tum in tellure tertiaria fossilium, quae in itinere suo observavit. Schropp, Berolini.
- PIEPER H., WILLMANN R. 1978. Mollusca. In: ILLIES J. (ed.), *Limnofauna Europaea*. 2nd Edition. Gustav Fischer Verlag, Stuttgart, pp. 118–137.
- POEY F. 1852. Introduccion a los Ciclostomas con generalidades sobre los moluscos gastropodos y particularmente sobre los terrestres operculados. *Memorias sobre la Historia Natural de Cuba* 1(8): 77–96.
- POIRET J. L. M. 1801. Coquilles fluviatiles et terrestres observées dans le Département de l'Aisne et aux environs de Paris: prodrome. Paris.
- POLI J. X. 1791. Testacea utriusque Siciliae eorumque historia et anatome tabulis aeneis illustrate Vol 1. Ex Regio Typographeio, Parmae.
- PORRO C. 1838. Malacologia terrestre e fluviale della Provincia Comasca. Guglielmini & Redaelli, Milano.
<https://doi.org/10.5962/bhl.title.12948>
- PRASHAD B. 1925. Notes on lamellibranchs in the Indian Museum. *Indian species of the genus Pisidium* (6). *Records of the Indian Museum* 27: 405–422.
- PRESTON H. B. 1909. Report on a small collection of freshwater Mollusca (*Limnaea* and *Pisidium*) from Tibet. *Records of the Indian Museum* 3(2): 115–116.
- PRIE V. E., CUCHERAT X. 2021. Additional molecular data on the protected springsnail species *Bythinella viridis* (Poiret, 1801) (Gastropoda: Bythinellidae) suggest synonymy of related taxa. *Knowledge & Management of Aquatic Ecosystems* 442 (36).
<https://doi.org/10.1051/kmae/2021035>
- RACKHAM O. 2008. Holocene history of Mediterranean Island landscapes. In: VOGIATZAKIS I. N., PUGNETTI G., MANNION A. M. (eds). *Mediterranean Island*

- Landscapes Natural and Cultural Approaches. Springer, UK, pp. 36–60.
https://doi.org/10.1007/978-1-4020-5064-0_3
- RADEA C., LAMPRI P. N., BAKOLITSAS K., PARMAKELIS A. 2021. A new hydrobiid species (Caenogastropoda, Truncatelloidea) from insular Greece. *Zoosystematics and Evolution* 97: 111–119.
<https://doi.org/10.3897/zse.97.60254>
- RADEA C., LOUVROU I., ECONOMOU-AMILLI A. 2008. First record of the New Zealand mud snail *Potamopyrgus antipodarum* J.E. Gray, 1843 (Mollusca: Hydrobiidae) in Greece – Notes on its population structure and associated microalgae. *Aquatic Invasions* 3: 341–344.
<https://doi.org/10.3391/ai.2008.3.3.10>
- RADEA C., PARMAKELIS A., MOURIKIS T., TRIANTIS K. A. 2013. *Isimerope*, a new genus of Hydrobiidae (Caenogastropoda: Rissoidae) from Greece. *Journal of Molluscan Studies* 79: 168–176.
<https://doi.org/10.1093/mollus/eyt010>
- RADEA C., PARMAKELIS A., VELENTZAS A. D., TRIANTIS K. A. 2016. Systematics of *Pseudamnicola* (Gastropoda: Hydrobiidae): description of two new species from insular Greece and redescription of *P. pieperi* Schütt, 1980. *Journal of Molluscan Studies* 82: 67–79.
<https://doi.org/10.1093/mollus/eyv031>
- RAFINESQUE C. S. 1815. *Analyse de la nature ou Tableau de l'univers et des corps organisés*. (self-published), Palermo.
<https://doi.org/10.5962/bhl.title.106607>
- RAULIN M. V. 1869. Description physique de l'île de Crète, fin (Botanique, Zoologie, additions, carte et coupes). Livre V. Zoologie. Actes de la Société linnéenne de Bordeaux 24 [1861]: 643–708.
- RÉCLUZ C. A. 1841. Description de quelques nouvelles espèces de Nérites vivantes. *Revue Zoologique*, par la Société Cuvierienne: 337–343.
- REGTEREN ALTEA C. O. VAN 1957. 5 Pleistocene Mollusca. In: VAN STRAATEN L. M. J. U., DE JONG J. D. (eds). The excavation at Velzen. *Verhandelingen van het Koninklijk Nederlands Geologisch – Mijnbouwkundig Genootschap Geologische Serie*, XVII. Mouton & Co, 's-Gravenhage, pp. 121–138.
- ROSSMÄSSLER E. A. 1835–1837. *Iconographie der Land- & Süßwasser- Mollusken, mit vorzüglicher Berücksichtigung der europäischen noch nicht abgebildeten Arten*. Arnoldische Buchhandlung, Dresden und Leipzig.
- SANDS A. F., GLÖER P., GÜRLEK M. E., ALBRECHT C., NEUBAUER T. A. 2020. A revision of the extant species of *Theodoxus* (Gastropoda, Neritidae) in Asia, with the description of three new species. *Zoosystematics and Evolution* 96: 25–66.
<https://doi.org/10.3897/zse.96.48312>
- SANDS A. F., SEREDA S. V., STELBRINK B., NEUBAUER T. A., LAZAREV S., WILKE T., ALBRECHT C. 2019. Contributions of biogeographical functions to species accumulation may change over time in refugial regions. *Journal of Biogeography* 46: 1274–1286.
<https://doi.org/10.1111/jbi.13590>
- SAY T. 1817. Conchology. In: NICHOLSON W. (ed.). American edition of the British Encyclopedia, or, dictionary of arts and sciences comprising an accurate and popular view of the present improved state of human knowledge. First Edition. Samuel, Mitchell & Ames, Philadelphia, unpaginated.
- SCHRANK F. VON PAULA 1803. *Fauna boica: Durchgedachte Geschichte dere in Baiern einheimischen und zahmen Thiere*. Band 3, Abtheilung 2. Stein'schen Buchhandlung, Nürnberg
<https://doi.org/10.5962/bhl.title.51801>
- SCHÜTT H. 1980. Zur Kenntnis griechischer Hydrobiiden. *Archiv für Molluskenkunde* 110 [1979]: 115–149.
- SCHÜTT H. 1982. Die ostmediterrane Verbreitung von *Ancylus fluviatilis*. *Mitteilungen der Deutschen Malakozoologischen Gesellschaft* 3(36) [1981]: 519–523.
- SCHÜTT H. 1986. The dissemination of *Theodoxus* species in Greece including the islands (Moll. Prosobranch.). *Biologia Gallo-Hellenica* 12: 283–290.
- SCHÜTT H. 1987. *Bulinus truncatus* auf Kreta. *Zeitschrift für Angewandte Zoologie* 74: 249–245.
- SCOPOLI G. A. 1777. *Introductio ad historiam naturalem, sistens genera lapidum, plantarum et animalium hactenus detecta, characteribus essentialibus donata, in tribus divisa, subinde ad leges naturae*. Wolfgang Gerle, Pragae.
- SEIDL F. 1978. Zur Molluskenfauna von Kreta: I. Historische Aufzeichnungen, Aus dem Reisetagebuch von Hofrat Dr. Rudolf Sturany. *Mitteilungen der Zoologischen Gesellschaft Braunau* 3: 157–193.
- SEIDL F. 2001. Zur Kenntnis der Süßwassermolluskenfauna der ostägäischen Insel Ikaria. *Mitteilungen der Zoologischen Gesellschaft Braunau* 8: 95–102.
- SERVAIN G. 1882 [„1881“]. *Histoire malacologique du lac Balaton en Hongrie*. S. Lejay, Poissy, 125 pp. + Errata [1 pp.].
<https://doi.org/10.5962/bhl.title.10458>
- STIMPSON W. 1865. Diagnoses of newly discovered genera of gastropods, belonging to the sub-fam. Hydrobiinae of the family Rissoidae. *American Journal of Conchology* 1: 52–54.
- STRONG E. E., GARGOMINY O., PONDER W. F., BOUCHET P. 2008. Global diversity of gastropods (Gastropoda; Mollusca) in freshwater. *Hydrobiologia* 595: 149–166.
<https://doi.org/10.1007/s10750-007-9012-6>
- STUDER S. 1820. *Systematisches Verzeichniss der bis jetzt bekannt gewordenen Schweizer-Conchylien*. Stämpflischen Buchdruckerey, Bern.
- STURANY R. 1904. Ueber Kreta-Mollusken. *Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft* 36: 108–112.
- SZAROWSKA M., HOFMAN S., OSIKOWSKI A., FALNIOWSKI A. 2014. *Heleobia maltzani* (Westerlund, 1886) (Caenogastropoda: Truncatelloidea: Cochliopidae) from Crete and species-level diversity of *Heleobia* Stimpson, 1865 in Europe. *Journal of Natural History* 48: 2487–2500.
<https://doi.org/10.1080/00222933.2014.946109>



- SZAROWSKA M., OSIKOWSKI A., HOFMAN S., FALNIOWSKI A. 2016a. Do diversity patterns of the spring-inhabiting snail *Bythinella* (Gastropoda, Bythinellidae) on the Aegean Islands reflect geological history? *Hydrobiologia* 765: 225–243.
<https://doi.org/10.1007/s10750-015-2415-x>
- SZAROWSKA M., OSIKOWSKI A., HOFMAN S., FALNIOWSKI A. 2016b. *Pseudamnicola* Paulucci, 1878 (Caenogastropoda: Truncatelloidea) from the Aegean Islands: a long or short story? *Organisms Diversity & Evolution* 16: 121–139.
<https://doi.org/10.1007/s13127-015-0235-5>
- THIELE J. 1925. Prosobranchia. In: KÜKENTHAL W., KRUMBACH T. (eds). *Handbuch der Zoologie* 5 (1, 1). Walter de Gruyter & Co., Berlin, pp. 40–94.
- TILLIER S., MORDAN P. 1983. The conchological collections of Bruguière and Olivier from the Ottoman Empire (1792–1798). *Journal of Conchology* 31: 153–160.
- TURTON W. 1857. *Manual of the land and fresh-water shells of the British Islands: New edition, with additions by John Edward Gray*. Longman, Brown, Green, Longmans & Roberts, London.
<https://doi.org/10.5962/bhl.title.124019>
- TRYON G. W. 1866. [Book review of] *Researches upon the Hydrobiinae and allied forms by Dr. Wm. Stimpson*, 8 vol., 58 pp. Smithsonian Institution, Washington DC, August 1865. *American Journal of Conchology* 2(2): 152–158.
- WESTERLUND C. A. 1886. Fauna der in der paläarktischen Region (...) lebenden Binnenconchylien. VI. Fam. Ampullaridae, Paludinidae, Hydrobiidae, Melanidae, Valvatidae & Neritidae. Håkan Ohlsson, Lund.
- WESTERLUND C. A. 1890. Fauna der in der paläarktischen Region (...) lebenden Binnenconchylien. VII. Malacozoa Acephala. R. Friedländer & Sohn, Berlin.
- WESTERLUND C. A., BLANC H. 1879. Aperçu sur la faune malacologique de la Grèce inclus l'Épire et la Thessalie. Coquilles extramarines. Tornese, Napoli.
- WILKE T., FALNIOWSKI A. 2001. The genus *Adriohydrobia* (Hydrobiidae: Gastropoda): polytypic species or polymorphic populations? *Journal of Zoological Systematics and Evolutionary Research* 39: 227–234.
<https://doi.org/10.1046/j.1439-0469.2001.00171.x>
- ZIERITZ A., SOUSA R., ALDRIDGE D. C., DOUDA K., ESTEVES E., FERREIRA-RODRÍGUEZ N., MAGEROY J. H., NIZZOLI D., OSTERLING M., REIS J., RICCARDI N., DAILL D., GUMPINGER C., VAZ A. S. 2022. A global synthesis of ecosystem services provided and disrupted by freshwater bivalve molluscs. *Biological Reviews* 97: 1967–1998.
<https://doi.org/10.1111/brv.12878>

Received: November 27th, 2024

Accepted: December 10th, 2024

Published on-line: March 4th, 2025

