

The species of the genus *Armadillidium* (Isopoda: Oniscidea) known from Greece

HELMUT SCHMALFUSS

Abstract

In the present paper the results of a revision of the Greek species of *Armadillidium* are summarized. This revision was published in six separate parts between 2006 and 2012. A list is presented of the 59 species that are considered as valid, with synonyms and distributional data. Additionally these species are ascribed to a number of distributional categories.

Key words: Isopoda, Oniscidea, *Armadillidium*, Greece.

Zusammenfassung

Im vorliegenden Artikel werden die Ergebnisse einer Revision der griechischen *Armadillidium*-Arten zusammengefasst. Diese Revision wurde in sechs getrennten Teilen zwischen 2006 und 2012 publiziert. Die 59 als valide betrachteten Arten werden mit Synonymen und Verbreitungsangaben aufgelistet. Außerdem werden diese Arten einer Anzahl von Verbreitungskategorien zugeordnet.

Contents

1 Introduction.....	13
2 The genus <i>Armadillidium</i>	13
3 List of <i>Armadillidium</i> species known from Greece	14
4 Distributional categories	18
5 Conclusions.....	19
6 References.....	19

1 Introduction

The terrestrial isopod genus *Armadillidium* Brandt, 1831 has a radiation centre in the northeastern Mediterranean region, with an exceptionally high number of often very similar species in this area. In addition to the complicated taxonomical situation many species were described insufficiently in the first half of the 20th century. This led to the effect that many species were described more than once, and that in many cases safe identifications were impossible. To change this situation for the Greek species of *Armadillidium* an extensive revision of all species known from Greece was undertaken in six parts which were published between 2006 and 2012 (SCHMALFUSS 2006a, b; 2008; 2010–2012). 45 species described before 2006 and presently considered as valid were redescribed, in the many doubtful cases after type-material. All diagnostic characters were illustrated in a comparable way, and the majority of these illustrations are SEM-photographs. In addition to the described species extensive unpublished material was included in the revision, which was collected during the past 45 years by the author and many colleagues. Thus the descriptions of 14 new species have been included in this revision.

Acknowledgements

I wish to thank Dr. S. SFENTHOURAKIS (Lefkosia/Cyprus) and Dr. S. TAITI (Florence/Italy) who helped to improve a former draft of the manuscript.

2 The genus *Armadillidium*

The genus *Armadillidium* was instituted by BRANDT in BRANDT & RATZEBURG (1831: 81). *A. commutatum*, which is a synonym of *A. vulgare*, was designated as type species by FOWLER (1912: 225). Today 189 taxa are considered as valid species. *Armadillidium* is a really Mediterranean genus, with an autochthonous distribution in Europe, northern Africa and western Asia (see map Fig. 1).

Definition of *Armadillidium*:

1. Ability to roll up into a closed ball, which may have a lemon-like shape.
2. Lungs with multiple spiracles in 1st and 2nd pleopod-exopodite.
3. Uropod-exopodite flattened and truncated, filling the space between epimeron of pleonite 5 and telson.
4. Frontal part of head with a triangular shield (which seems to be a modified supra-antennal line) reaching

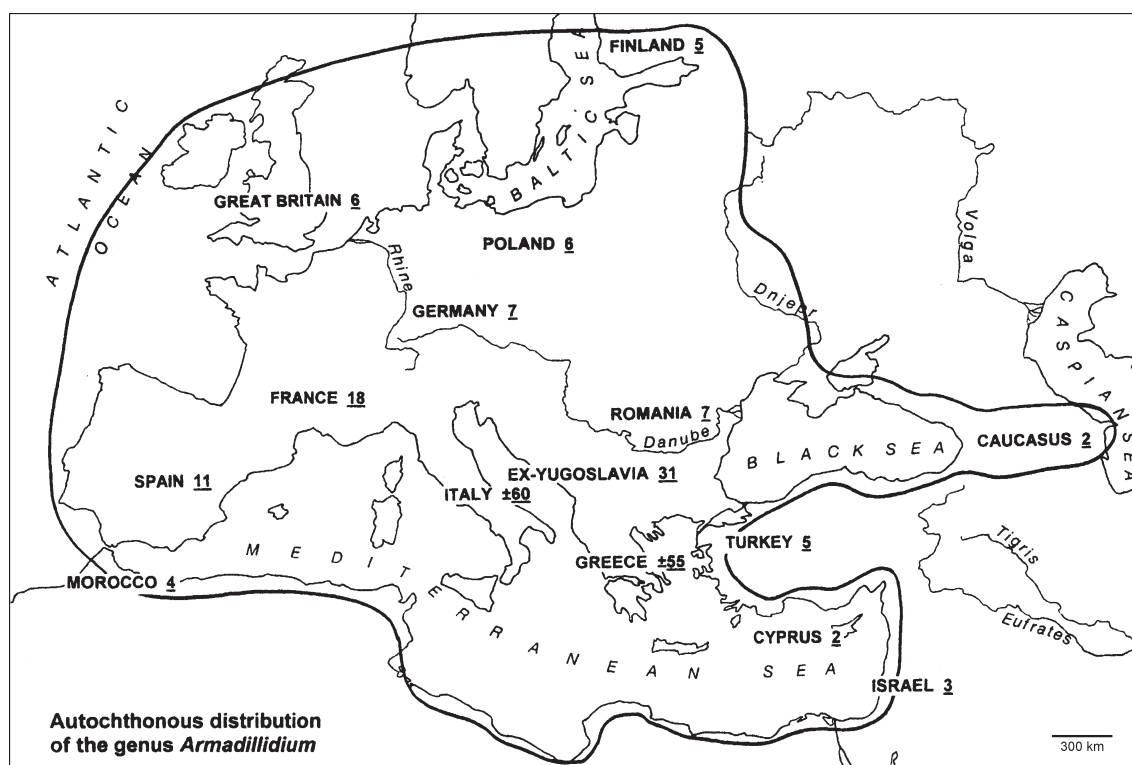


Fig. 1. Autochthonous distribution of the genus *Armadillidium* (from SCHMALFUSS 2000).

the level of the upper head surface or surpassing this level.

5. Lateral parts of inter-ocular line present.

Considering the morphological arguments the family Armadillidiidae seems to be a monophyletic taxon, while the genus *Armadillidium*, according to the definition specified above, may well be paraphyletic. Sophisticated molecular investigations are necessary to reach safer phylogenetic conclusions. The same holds true for the phylogenetic relations inside the genus, as the morphological characters are all rather prone to convergence and the evidence is often ambiguous. The only group of the Greek species that may be a monophyletic branch on morphological grounds is the *nasatum*-group with the species *A. grimmi*, *pallasii* and *peraccae*, characterized by the elongated frontal triangle which surpasses the upper head surface considerably, and correspondingly an elongated narrow telson.

3 List of *Armadillidium* species known from Greece

In bold type: presently considered as valid species.

***Armadillidium aegaeum* Strouhal, 1929**

Redescription: SCHMALFUSS (2006b).

Greek records: Northern Sporades and Évvia (map see SCHMALFUSS 2006b: fig. 19).

Distribution: The Greek islands mentioned above.

Armadillidium aeginense Strouhal, 1939 = *A. argolicum*.

Armadillidium albanicum Verhoeff, 1901 = *A. klugii*.

***Armadillidium album* Dollfus, 1887**

Redescription: SCHMALFUSS (2008).

Greek records: Coast of northern Aegean Sea and Ionian island Zákynthos (map see SCHMALFUSS 2008: fig. 13).

Distribution: Known from the coasts of the European Atlantic north to England and the Netherlands (including Madeira) and from the northern and southwestern coasts of the Mediterranean.

***Armadillidium ameglioi* Arcangeli, 1914**

Synonyms: *A. ephesiicum* Strouhal, 1929 (from coast of Asia Minor), *A. samium*.

Redescription: SCHMALFUSS (2006b).

Greek records: Aegean islands Khíos, Sámos, Alatonísi, Náxos, Amorgós, Khálki, Sími, Ródos and the island of Kastelórizo 130 km E of Ródos (map see SCHMALFUSS 2006b: fig. 19).

Distribution: Known from the southeastern Aegean islands mentioned above and from the coast of southeastern Asia Minor (map of overall distribution in SCHMALFUSS 2000: fig. 7).

***Armadillidium arcadicum* Verhoeff, 1902**

Synonyms: *A. humile*, ?*A. zuellichi*.

Redescription: SCHMALFUSS (2006a).

Greek records: Ionian islands Kefaloniá and Zákynthos, western, central and southern parts of the Peloponnese (map see SCHMALFUSS 2006a: fig. 22).

Distribution: Known only from the Greek regions mentioned above.

***Armadillidium argolicum* Verhoeff, 1907**

Synonyms: *A. hydrense*, *A. mycenaeum*, *A. aeginense*.

Redescription: SCHMALFUSS (2006a).

Greek records: Northeastern Peloponnese including adjacent islands (map see SCHMALFUSS 2006a: fig. 22, additional record see SCHMALFUSS 2006b).

Distribution: Known only from the Greek regions mentioned above.

***Armadillidium artense* Strouhal, 1956**

Redescription: SCHMALFUSS (2010).

Greek records: Western mainland, surroundings of Árta (map see SCHMALFUSS 2010: fig. 12).

Distribution: Western Greek mainland.

Armadillidium astriger (C. Koch, 1841) = nomen dubium.

***Armadillidium atticum* Strouhal, 1929**

Redescription: SCHMALFUSS (2006b).

Greek records: Central mainland (Attica) and Aegean islands Évvia, Salamina, Égina and Kíthnos (map see SCHMALFUSS 2006b: fig. 48).

Distribution: Central Greece.

***Armadillidium beieri* Strouhal, 1937**

Redescription: SCHMALFUSS (2011).

Greek records: Ionian islands Lefkáda, Kálamos and Kefaloniá (map see SCHMALFUSS 2011: fig. 15).

Distribution: Greek Ionian islands.

***Armadillidium bensei* SchmalFUSS, 2006**

Description: SCHMALFUSS (2006a).

Greek records: Northern Peloponnese (map see SCHMALFUSS 2006a: fig. 22, unpublished specimens recorded from 40 km east of type locality, SMNS 1632, 1777).

Distribution: Greece, northern Peloponnese.

***Armadillidium bicurvatum* Verhoeff, 1901**

Synonym: *A. schulzi*.

Redescription: SCHMALFUSS (2006a).

Greek records: Western and central parts of Greece from Epirus and island Kérkira (= Corfu) to western Crete (map see SCHMALFUSS 2006a: fig. 51).

Distribution: Southern Albania, western Greek mainland and northern Ionian islands, Peloponnese and western Crete.

Armadillidium bimarginatum Strouhal, 1929 = *A. peloponnesiacum*.

***Armadillidium cephalonicum* Strouhal, 1929**

Redescription: SCHMALFUSS (2011).

Greek records: Ionian islands Kefaloniá and Zákynthos (map see SCHMALFUSS 2011: fig. 25).

Distribution: Greece, southern Ionian islands.

Armadillidium clausi Verhoeff, 1901 = nomen dubium.

***Armadillidium corcyraeum* Verhoeff, 1901 (Fig. 2)**

Synonyms: *A. graecorum*, *A. odyseum*.

Redescription: SCHMALFUSS (2010).



Fig. 2. *Armadillidium corcyraeum*, NW-Greece, Igumenitsa.

Greek records: Ionian islands Kérkira, Paxí and Lefkáda and adjacent mainland of the western Epirus (map see SCHMALFUSS 2010: fig. 30).

Distribution: Greece, northern Ionian islands and adjacent mainland.

***Armadillidium cythereium* Strouhal, 1937**

Redescription: SCHMALFUSS (2006b).

Greek records: Island Kíthira S of southeastern Peloponnese, and smaller islands between Kíthira and western Crete (map see SCHMALFUSS 2006b: fig. 48).

Distribution: Greece, islands between southeastern Peloponnese and western Crete.

Armadillidium emmae Strouhal, 1937 = *A. insulanum*.

***Armadillidium epiroticum* Strouhal, 1956**

Synonyms: *A. jonicum epiroticum*.

Redescription: SCHMALFUSS (2010).

Greek records: Western mainland, southernmost part of province Epirus (map see SCHMALFUSS 2010: fig. 40).

Distribution: Western Greek mainland.

Armadillidium epirense Strouhal, 1956 = *A. janinense*.

***Armadillidium fossuligerum* Verhoeff, 1902**

Redescription: SCHMALFUSS (2012).

Greek records: Central mainland, mountains of the prefecture Evritanía, central mainland of Greece (map see SCHMALFUSS 2012: fig. 16). Other records given for this species in SCHMALFUSS (2008) are considered as different species (see SCHMALFUSS 2012).

Distribution: Central Greek mainland.

***Armadillidium frontemarginatum* Strouhal, 1927**

Redescription: SCHMALFUSS (2011).

Greek records: Ionian islands Lefkáda, Meganísi, Kálamos, Kefaloniá and Zákynthos (map see SCHMALFUSS 2011: fig. 36).

Distribution: Greek Ionian islands.

***Armadillidium frontetriangulum* Verhoeff, 1901**

Redescription: SCHMALFUSS (2010).

Greek records: Ionian island Kérkira and adjacent mainland of southern Epirus (map see SCHMALFUSS 2010: fig. 51).

Distribution: Greece, northern Ionian islands and adjacent mainland.

***Armadillidium gionum* Schmalfuss, 2012**

Description: SCHMALFUSS (2012).

Greek records: Southern mainland, prefecture Fokída, Gíona Mountains (map see SCHMALFUSS 2012: fig. 16).

Distribution: Southern Greek mainland.

Armadillidium globosum Vogl, 1876 = nomen dubium.

Armadillidium graecorum Verhoeff, 1907 = *A. corcyraeum*.

***Armadillidium granulatum* Brandt, 1833**

Redescription: SCHMALFUSS (2006a).

Greek records: Ionian island Stamfáni (Strofádes) 50 km S of Zákynthos; southwestern peninsula of the Peloponnese; southern Aegean islands and island Lésvos (map see SCHMALFUSS 2006a: fig. 64).

Distribution: Coasts of the Mediterranean Sea east to Asia Minor and Libya; southwestern coast of the Black Sea; isolated records from the Atlantic coast of Portugal and northern France (map of overall distribution in SCHMALFUSS 2000: 78: fig. 3).

Armadillidium granulatum peloponnesiaca Verhoeff, 1901 = *A. peloponnesiacum*.

***Armadillidium grimmi* Schmalfuss, 2006**

Description: SCHMALFUSS (2006a).

Greek records: Southeastern Peloponnese (map see SCHMALFUSS 2006a: fig. 75).

Distribution: Greece, southeastern Peloponnese.

***Armadillidium hauseni* Schmalfuss, 1985**

Redescription: SCHMALFUSS (2011).

Greek records: Ionian island Paxí (map see SCHMALFUSS 2011: fig. 36).

Distribution: Known only from the Greek Ionian island Paxí S of Kérkira.

Armadillidium holtzi Strouhal, 1929 = *A. janinense*.

***Armadillidium humectum* Strouhal, 1937**

Redescription: SCHMALFUSS (2006a).

Greek records: Ionian islands Kérkira, Lefkáda and Zákynthos; southwestern mainland; northern Peloponnese (map see SCHMALFUSS 2006a: fig. 75).

Distribution: Western Greece.

Armadillidium humile Strouhal, 1936 = *A. arcadicum*.

Armadillidium hydrense Strouhal, 1937 = *A. argolicum*.

Armadillidium inflatum Verhoeff, 1907 = *A. albanicum*.

***Armadillidium insulanum* Verhoeff, 1907**

Synonyms: *A. emmae*, *A. lemnium*, *A. samothracium*, *A. scyrium*.

Redescription: SCHMALFUSS (2006b).

Greek records: Northeastern mainland; northern and central Aegean islands (map see SCHMALFUSS 2006b: fig. 71).

Distribution: Coasts and islands of the northern and central Aegean Sea.

***Armadillidium irmengardis* Strouhal, 1956**

Redescription: SCHMALFUSS (2010).

Greek records: Western mainland, province Epirus, prefecture Ioánnina (map see SCHMALFUSS 2010: fig. 69).

Distribution: Western Greek mainland.

***Armadillidium janinense* Verhoeff, 1902**

Synonyms: *A. epirense*, *A. holtzi* (see SCHMALFUSS 2012).

Redescription: SCHMALFUSS (2008).

Greek records: Western mainland (map see SCHMALFUSS 2008: fig. 34).

Distribution: Western Greek mainland.

***Armadillidium jerrentrupii* Schmalfuss, 2008**

Description: SCHMALFUSS (2008).

Greek records: Northeastern mainland, lower Néstos river system (map see SCHMALFUSS 2008: fig. 47).

Distribution: Northeastern Greek mainland.

***Armadillidium jonicum* Strouhal, 1927**

Redescription: SCHMALFUSS (2011).

Greek records: Ionian islands Lefkáda, Kálamos, Itháki and Kefaloniá (map see SCHMALFUSS 2011: fig. 56).

Distribution: Central Greek Ionian islands.

Armadillidium jonicum epiroticum Strouhal, 1956 = *A. epiroticum*.

***Armadillidium justii* Strouhal, 1937**

Redescription: SCHMALFUSS (2011).

Greek records: Ionian islands Lefkáda, Meganísi and Kálamos (map see SCHMALFUSS 2011: fig. 66).

Distribution: Central Greek Ionian islands.

***Armadillidium kalamatense* Verhoeff, 1907**

Redescription: SCHMALFUSS (2006a).

Greek records: Southern Peloponnese (map see SCHMALFUSS 2006a: fig. 96).

Distribution: Greece, southern Peloponnese.

***Armadillidium kalamium* Strouhal, 1956**

Redescription: SCHMALFUSS (2011).

Greek records: Ionian island Kálamos (map see SCHMALFUSS 2011: fig. 73).

Distribution: Only known from the central Greek Ionian island Kálamos.

***Armadillidium klugii* Brandt, 1833**

Synonyms: *A. albanicum*, *A. inflatum*.

Redescriptions: SCHMALFUSS (2010, *albanicum*; 2013, *klugii*).

Greek records: Ionian island Kérkira and northwestern mainland, province Epirus, prefecture Ioánnina (map see SCHMALFUSS 2010: fig. 12).

Distribution: Coasts and islands of northwestern Greece, Albania and Ex-Yugoslavia.

***Armadillidium kuehnelti* Schmalfuss, 2006**

Description: SCHMALFUSS (2006a).

Greek records: Northeastern Peloponnese (map see SCHMALFUSS 2006a: fig. 96).

Distribution: Greece, northeastern Peloponnese.

***Armadillidium laconicum* Strouhal, 1938**

Redescription: SCHMALFUSS (2006a).

Greek records: Southeastern Peloponnese (map see SCHMALFUSS 2006a: fig. 120).

Distribution: Greece, southeastern Peloponnese.

***Armadillidium laminigerum* Verhoeff, 1907**

Redescription: SCHMALFUSS (2012).

Greek records: Central mainland, prefecture Etolia Akarnanía (map see SCHMALFUSS 2012: fig. 34).

Distribution: Greece, central mainland.

Armadillidium lemnium Strouhal, 1937 = *A. insulanum*.

***Armadillidium lobocurvum* Verhoeff, 1902**

Redescription: SCHMALFUSS (2006a).

Greek records: Central mainland, coastal region of prefecture Fokída, and northwestern Peloponnese (map see SCHMALFUSS 2006a: fig. 120).

Distribution: Greece, northwestern Peloponnese and adjacent coasts of central Greece.

Armadillidium luridum Verhoeff, 1907 = *A. peloponnesiacum*.

***Armadillidium lymberakisi* Schmalzfuss, Paragamian & Sfenthourakis, 2004**

Redescription: SCHMALFUSS (2006b).

Greek records: Western Crete, Lefká Óri region (map see SCHMALFUSS 2006b: fig. 83).

Distribution: Greece, western Crete.

***Armadillidium maniatum* Schmalzfuss, 2006**

Description: SCHMALFUSS (2006a).

Greek records: Southern Peloponnese, Máni Peninsula (map see SCHMALFUSS 2006a: fig. 120).

Distribution: Greece, southernmost Peloponnese.

***Armadillidium marmoratum* Strouhal, 1929**

Synonym: *A. rhodium*.

Redescription: SCHMALFUSS (2006a).

Greek records: Marine littoral biotopes all over Greece (map see SCHMALFUSS 2006a: fig. 153).

Distribution: Coasts of Greece, western Turkey including Black Sea coast, Cyprus, Israel and Egypt (map of overall distribution in SCHMALFUSS 2000: 79: fig. 4).

***Armadillidium messenicum* Verhoeff, 1902**

Redescription: SCHMALFUSS (2006a).

Greek records: Southwestern Peloponnese (map see SCHMALFUSS 2006a: fig. 153).

Distribution: Greece, southwestern Peloponnese.

***Armadillidium meteorense* Schmalzfuss, 2012**

Description: SCHMALFUSS (2012).

Greek records: Province Thessaly, prefecture Trikala, region of Kalambáka (map see SCHMALFUSS 2012: fig. 34).

Distribution: Only known from central Greek mainland, region of Kalambáka.

Armadillidium mycenaenum Strouhal, 1937 = *A. argolicum*.

Armadillidium naxium Verhoeff, 1901 = nomen dubium.

Armadillidium odysseum Verhoeff, 1901 = *A. corcyraeum*.

***Armadillidium pallasii* Brandt, 1833**

Redescription: SCHMALFUSS (2011).

Greek records: Ionian island Kérkira (map see SCHMALFUSS 2011: fig. 84).

Distribution: Eastern coast of Italy, Dalmatian coast and islands down to Greek island Kérkira, coasts of the Marmara Sea, Turkish and Bulgarian coasts of Black Sea, ?Crimea.

***Armadillidium pangaionum* Schmalzfuss, 2008**

Description: SCHMALFUSS (2008).

Greek records: Northeastern mainland, Pangéo Mountain (map see SCHMALFUSS 2008: fig. 88).

Distribution: Greece, northeastern mainland.

Armadillidium parvum Strouhal, 1938 = ?*A. humectum*.

***Armadillidium pelionense* Strouhal, 1928**

Redescription: SCHMALFUSS (2012).

Greek records: Province Thessaly, prefecture Magnisía, Pílio Mountains (map see SCHMALFUSS 2012: fig. 34).

Distribution: Greece, eastern coast of central mainland.

***Armadillidium peloponnesiacum* Verhoeff, 1901**

Synonyms: *A. bimarginatum*, *A. luridum*, *A. propinquum*.

Redescription: SCHMALFUSS (2006a).

Greek records: Western, central and southern Greece including Ionian islands Lefkáda, Kefaloniá and Zákynthos, and the Aegean islands Évvia and Skíros (map see SCHMALFUSS 2006a: fig. 172).

Distribution: Southwestern Greece.

***Armadillidium peraccae* Tua, 1900 (Fig. 3)**

Redescription: SCHMALFUSS (2006b).

Greek records: Northern Aegean islands Thásos and Lésvos (map see SCHMALFUSS 2006b: fig. 83).

Distribution: Southeastern coast of Italy, northern Aegean islands, coast of the Marmara Sea.

***Armadillidium petralonense* Schmalzfuss, 2008**

Description: SCHMALFUSS (2008).

Greek records: Northern mainland, peninsula Khalkidikí (map see SCHMALFUSS 2008: fig. 68).

Distribution: Northern Greek mainland, Khalkidikí.

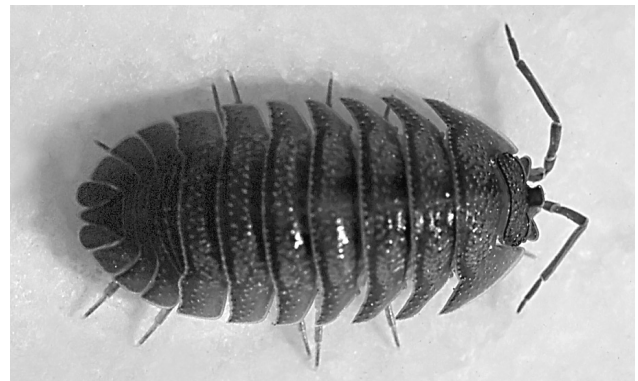


Fig. 3. *Armadillidium peraccae*, northern Aegean island Thásos.

***Armadillidium phalacronum* Schmalfuss, 2008**

Description: SCHMALFUSS (2008).

Greek records: Northeastern mainland, Falakró Mountain and western Rodópi Mountains (map see SCHMALFUSS 2008: fig. 68).

Distribution: Greece, northeastern mainland.

***Armadillidium pieperi* Schmalfuss, 2008**

Description: SCHMALFUSS (2008).

Greek records: Northern mainland, peninsula Khalkidiki (map see SCHMALFUSS 2008: fig. 47).

Distribution: Greece, northern mainland, Khalkidiki.

Armadillidium propinquum Strouhal, 1929 = *A. peloponnesiacum*.

***Armadillidium pseudovulgare* Verhoeff, 1902**

Synonym: *A. veluchiense*.

Redescription: SCHMALFUSS (2012).

Greek records: Central mainland, prefecture Evritanía, Timfristós Mountain and Panetolikó Mountain (map see SCHMALFUSS 2012: fig. 66).

Distribution: Greece, central mainland.

Armadillidium rhodium Strouhal, 1937 = *A. marmoratum*.

Armadillidium samium Strouhal, 1929 = *A. ameglioi*.

Armadillidium samothracium Strouhal, 1937 = *A. insulanum*.

Armadillidium schulzi Strouhal, 1929 = *A. bicurvatum*.

Armadillidium scyrium Strouhal, 1929 = *A. insulanum*.

***Armadillidium sfenthourakisi* Schmalfuss, 2008**

Description and additional records: SCHMALFUSS (2008, 2012).

Greek records: Northern mainland, Mount Olympus region (map see SCHMALFUSS 2012: fig. 66).

Distribution: Greece, northern mainland, Mount Olympus region.

***Armadillidium simile* Strouhal, 1937**

Redescription: SCHMALFUSS (2011).

Greek records: Ionian island Kérkira (= Corfu).

Distribution: Only known from the Greek Ionian island Kérkira.

***Armadillidium stolikanum* Verhoeff, 1907**

Redescription: SCHMALFUSS (2012).

Greek records: Southwestern Greek mainland (map see SCHMALFUSS 2012: fig. 66).

Distribution: Known only from the type locality on the Greek mainland.

***Armadillidium stymphalicum* Schmalfuss, 2006**

Description: SCHMALFUSS (2006a).

Greek records: Northeastern Peloponnese, region around the Killini Mountains (map see SCHMALFUSS 2006a: fig. 153).

Distribution: Greece, northeastern Peloponnese.

Armadillidium thessalorum Verhoeff, 1902 = nomen dubium (see SCHMALFUSS 1982: 217).

***Armadillidium tripolitzense* Verhoeff, 1902**

Synonyms: *A. olympiacum*, *A. voidiense*.

Redescription: SCHMALFUSS (2006a).

Greek records: Peloponnese and mountains of Attica (map see SCHMALFUSS 2006a: fig. 153).

Distribution: Greece, Peloponnese and Attica.

***Armadillidium tuberculatum* Schmalfuss, 2008**

Description and additional records: SCHMALFUSS (2008, 2012).

Greek records: Eastern Macedonia and northeastern Thessaly (map see SCHMALFUSS 2012: fig. 71).

Distribution: Greece, northern mainland.

Armadillidium veluchiense Verhoeff, 1902 = *A. pseudovulgare*.

***Armadillidium versluysi* Strouhal, 1937**

Redescription: SCHMALFUSS (2012).

Greek records: Central mainland, Parnasós Mountain (map see SCHMALFUSS 2012: fig. 71).

Distribution: Greece, central mainland.

***Armadillidium vulgare* (Latreille, 1804)**

Synonym: *A. schellenbergi*.

Redescription: SCHMALFUSS (2006a).

Greek records: Known from all over Greece, but lacking on south-eastern Aegean islands (map see SCHMALFUSS 2006a: fig. 211).

Distribution: Originated probably in the northeastern Mediterranean region, introduced by human activities to most temperate and even some tropical regions of the world.

***Armadillidium wernerii* Strouhal, 1927**

Redescription: SCHMALFUSS (2011).

Greek records: Known for sure only from the Ionian island Kérkira.

Distribution: Greece, Ionian island Kérkira.

***Armadillidium xerovunense* Strouhal, 1956**

Redescription: SCHMALFUSS (2010).

Greek records: Western mainland, province Epirus, prefectures Ioánnina and Árta (map see SCHMALFUSS 2010: fig. 80).

Distribution: Only known from the northwestern Greek mainland.

Armadillidium zuellichi Strouhal, 1937 = *A. arcadicum*.

4 Distributional categories

In an article on the distributional patterns of the Greek species of *Armadillidium* I have ascribed these species to eight distributional categories (SCHMALFUSS 2000: 81). The proportions of these categories reflect the restricted mobility of these animals in combination with the restricted distribution areas of the majority of the species as a result of recent radiation processes. I add an updated and somewhat changed version of this list of categories, as in the meantime there have been taxonomic changes and 14 new species have been described in the course of the recent revisions.

Holomediterranean

Armadillidium album
Armadillidium granulatum
Armadillidium vulgare

Eastern Mediterranean

Armadillidium marmoratum

Northeastern Mediterranean

Armadillidium pallasii
Armadillidium peraccae

Eastern Adriatic coast + islands

Armadillidium klugii (= *albanicum* + *inflatum*)

Ionian coast + islands

Armadillidium arcadicum
Armadillidium artense
Armadillidium beieri
Armadillidium cephalonicum
Armadillidium corcyraeum
Armadillidium epiroticum
Armadillidium frontemarginatum
Armadillidium frontetriangulum
Armadillidium hauseni
Armadillidium humectum
Armadillidium jonicum
Armadillidium justi
Armadillidium kalamium
Armadillidium laminigerum
Armadillidium simile
Armadillidium werneri

Western Greece

Armadillidium bicurvatum

Southern Greece

Armadillidium peloponnesiacum

Greek mainland

Armadillidium fossuligerum
Armadillidium gionum
Armadillidium irmengardis
Armadillidium janinense
Armadillidium jerrentrupii
Armadillidium meteorense
Armadillidium pangaionum
Armadillidium petralonense
Armadillidium phalacronum
Armadillidium pieperi
Armadillidium pseudovulgare
Armadillidium sfenthourakisi
Armadillidium stolikanum
Armadillidium tuberculatum
Armadillidium versluyisi
Armadillidium xerovunense

Peloponnese

Armadillidium argolicum
Armadillidium bensei
Armadillidium grimmii
Armadillidium kalamatense
Armadillidium kuehnelti
Armadillidium laconicum
Armadillidium lobocurvum
Armadillidium maniatum
Armadillidium messenicum
Armadillidium stymphalicum
Armadillidium tripolitense

Aegean

Armadillidium aegaeum
Armadillidium ameghioi
Armadillidium atticum
Armadillidium cythereium
Armadillidium insulanum
Armadillidium lymberakisi
Armadillidium pelionense

5 Conclusions

With these 59 species in Greece and comparable or even higher numbers in Ex-Yugoslavia and Italy the genus *Armadillidium* reaches one of the highest species densities among terrestrial isopod genera, only equaled by the genus *Porcellio* on the Iberian Peninsula (around 50 described species). The northern Mediterranean region has worldwide the highest species numbers of terrestrial isopods relative to its area. One reason for this may be these closely related and geologically young species swarms of *Armadillidium* and *Porcellio* and, to a lesser extent, some other genera. They probably differentiated during rather rapidly changing climatic conditions in the Ice Age, and these differentiations were facilitated by the heterogeneous structure of the regions concerned and by the poor dispersal abilities of the isopods. On the Peloponnese there seemed to have existed an ancient stratum of a few species of *Armadillidium*, while during wetter periods in the Pleistocene immigration waves arrived from the north which were “trapped” on the many mountain systems in drier and warmer periods, and so differentiated into a high number of species with very restricted distribution areas (see SCHMALFUSS 2006a: 99).

6 References

- BRANDT, I. & RATZBURG, J. (1831): Isopoda. – In: Medizinische Zoologie, vol. 2: 70–84, pls. 12–13.
 FOWLER, H. (1912): The Crustacea of New Jersey. – Report of the New Jersey State Museum 1911: 29–650.
 SCHMALFUSS, H. (1982): Die Landisopoden (Oniscoidea) Griechenlands. 3. Beitrag: Gattung *Armadillidium*, Teil II (*Armadillidiidae*). – Spixiana 5: 217–230.

- SCHMALFUSS, H. (2000): Distributional patterns in the Greek species of the terrestrial isopod genus *Armadillidium* Brandt, 1833. – Belgian Journal of Zoology **130** (Supplement): 77–82.
- SCHMALFUSS, H. (2006a): The terrestrial isopods (Isopoda: Oniscidea) of Greece. 23rd contribution: The genus *Armadillidium* (Armadillidiidae) on the Peloponnese. – Stuttgarter Beiträge zur Naturkunde, Serie A (Biologie) **693**: 102 pp.
- SCHMALFUSS, H. (2006b): The terrestrial isopods (Isopoda: Oniscidea) of Greece. 24th contribution: The genus *Armadillidium* (Armadillidiidae) on the Aegean islands. – Stuttgarter Beiträge zur Naturkunde, Serie A (Biologie) **698**: 43 pp.
- SCHMALFUSS, H. (2008): The terrestrial isopods (Isopoda: Oniscidea) of Greece. 25th contribution: The genus *Armadillidium* (Armadillidiidae) in the provinces Macedonia and Thrace. – Stuttgarter Beiträge zur Naturkunde A, Neue Serie **1**: 153–201.
- SCHMALFUSS, H. (2010): The terrestrial isopods (Isopoda: Oniscidea) of Greece. 26th contribution: The genus *Armadillidium* (Armadillidiidae) in the province Epirus. – Stuttgarter Beiträge zur Naturkunde A, Neue Serie **3**: 1–31.
- SCHMALFUSS, H. (2011): The terrestrial isopods (Isopoda: Oniscidea) of Greece. 27th contribution: The genus *Armadillidium* (Armadillidiidae) on the Ionian islands. – Stuttgarter Beiträge zur Naturkunde A, Neue Serie **4**: 1–42.
- SCHMALFUSS, H. (2012): The terrestrial isopods (Isopoda: Oniscidea) of Greece. 28th contribution: The genus *Armadillidium* (Armadillidiidae) in the province Epirus. – Stuttgarter Beiträge zur Naturkunde A, Neue Serie **5**: 73–101.
- SCHMALFUSS, H. (2013): Revision of the *Armadillidium klugii*-group (Isopoda: Oniscidea). – Stuttgarter Beiträge zur Naturkunde A, Neue Serie **6**: 1–12.

Author's address:

Dr. HELMUT SCHMALFUSS, Staatliches Museum für Naturkunde, Rosenstein 1, 70191 Stuttgart, Germany;
e-mail: helmutschmalfluss@smns-bw.de

Manuscript received: 4.X.2012, accepted: 13.XI.2012.

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Stuttgarter Beiträge Naturkunde Serie A \[Biologie\]](#)

Jahr/Year: 2013

Band/Volume: [NS_6_A](#)

Autor(en)/Author(s): Schmalfuss Helmut

Artikel/Article: [The species of the genus Armadillidium \(Isopoda: Oniscidea\) known from Greece 13-20](#)