

Terrestrial invertebrate fauna of Polish caves – a summary of 100 years of research

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Abstract

The year 2018 is particularly important in the history of zoological research in Poland. A hundred years ago, Kazimierz Demel published the first work concerning the terrestrial cave fauna of caves in the Ojców area. In this paper we present the extent of research on the terrestrial invertebrate fauna of Polish caves in the last 100 years. All accessible research papers that have been published during this period were analysed. Based on published literature, 593 species of terrestrial invertebrate were recorded in Polish caves. Additionally, detailed list of species of individual taxonomic groups was provided.

Keywords

subterranean fauna, terrestrial, invertebrate, checklist, caves, Poland

Introduction

The year 2018 is particularly important in the history of zoological research conducted in our country as it closes a period of 100 years of research on terrestrial invertebrates inhabiting the caves of Poland. A hundred years ago, Kazimierz Demel published the first groundbreaking work concerning the fauna of caves in the Ojców area. Although many works regarding Poland's cave fauna have been published in the last 100 years, it is still of marginal research interest to Polish zoologists, ecologists or general biologists. The aim of this paper is to present the entire range of research on the terrestrial invertebrate fauna of Polish caves in the last 100 years.

Materials and methods

All accessible research papers regarding the terrestrial invertebrate fauna of Polish caves that were published in the last 100 years were analysed in this article. These include the accessible papers published as monographs, original research papers, notes and conference materials. The results were presented here as a historical overview of the research, a list of references and a list of proven invertebrate species. The generic names have been provided regarding taxonomic indexes Fauna Europaea <https://fauna-eu.org> and World Spider Catalog <https://wsc.nmbe.ch>.

Results

Historical overview of the research

The beginning of interest in the terrestrial fauna of Polish caves dates back to the first years of the 20th century when Kazimierz Demel conducted his pioneer research in 1914. Unfortunately, the First World War prevented him from processing and issuing the results, which were actually published in 1918. Demel presented the fauna inhabiting eight caves of the Ojców area (southern part of Kraków-Częstochowa Upland), i.e. Jaskinia Koziarnia, Jaskinia Pustelnia, Jaskinia Biała, Jaskinia Złodziejska, Jaskinia Zbójecka, Jaskinia Łokietka, Jaskinia Ciemna and Jaskinia Jerzmanowska. Despite the period devoted to the research being relatively short (two and a half months), Demel collected a vast number of invertebrates, and in the presented results listed 30 species of invertebrates, 11 of which were described as cave forms, although they could be observed outside of caves (contemporarily named as troglöphiles). In his works, Demel compared his results to the ones already presented by the cave fauna researchers from Germany, Belgium, France and Austria, giving attention to faunal similarities with other caves. In the papers of the above-mentioned author, one can find both: a list of species and data concerning cave environment observations, i.e. temperature, humidity, light coverage and access to degrading organic matter, which enabled the author to perform ecological analyses.

Based on the material compiled by Demel, Stach (1919) proved the presence of five species of springtails, including description of one species new to science, i.e. *Mesochorutes ojcovensis*. The author also compared the Polish springtail fauna to that of other European countries and confirmed Demel's assumptions that troglöbionts are scarce in Polish caves. Furthermore, the data concerning springtail species found in Polish caves were summarised by Stach (1947–1963).

In the 1920s, Arndt (1921, 1923) published two papers based on his research in a few caves and mines (e.g. Złota Sztolnia) in Sudety Mountains. Nowadays most of these mines are located in the Czech Republic, while others, i.e. Niedźwiedzia Jama or Solna Jama, in Poland. Despite the research was conducted only from March to October 1920, Arndt proved the presence of 42 invertebrate species (including stygobiotic

ones) and recognised the *Schaefferia emucronata* springtail as a troglobiont species. He noticed that the fauna of the Sudety Mountains lacks the species typical to the caves of Harz Mountains, Central Alps and Urals, i.e. blind beetles (Coleoptera), Orthoptera and Acari. In the second paper, Arndt (1923) supplemented the information on ecological groups and faunal genesis in the examined subterranean sites.

Other papers devoted to the cave-dwelling fauna of the Sudety Mountains were published by Pax and Maschke (1935) and Pax (1937). The object of the research was both terrestrial and aquatic fauna in the Rogóżka Cave. The research, which began in 1933, was focused not only on the cave fauna but also on the environmental conditions, i.e. the physical and chemical properties of the lake water, and the air temperature. Nowadays the Rogóżka Cave is the non-existent cave, in 1962 it was partly destroyed by mining in the crystalline limestones quarry, and next the entrance was covered by stones (Bieroński et al. 2009).

The Second World War delayed the faunal research in Polish caves for a few years. The first post-war researcher who was interested in cave-dwelling invertebrate fauna was Kazimierz Kowalski, who presented the results of his biological observations and the research project on the Tatra Mountains caves for the years 1951–1952 in the “Wierchy” annual. In 1955, he published a paper with the results of the above-mentioned research. During his research, he visited all known Tatra caves, but his main research interest was in six caves, i.e. Jaskinia Dziura Wyżnia, Jaskinia Zimna, Jaskinia Groby, Jaskinia Magurska, Jaskinia Lodowa and Jaskinia Dziura. His methodology included not only the faunal collection by means of Barber traps or direct search methods, but also microclimate analyses, i.e. light influence and air movement. Kowalski did not limit his research to the invertebrate fauna, as it included also bats. In his work, the characteristics of the research area and detailed descriptions of microclimate conditions can be found.

In the following decades, i.e. in the 60s and 70s of the 20th century, Skalski presented exceptional research activity in the field of cave-dwelling fauna. He published his first work together with Wójcik (Skalski and Wójcik 1968), where they presented faunal genesis and microclimate characteristics of selected caves of the Częstochowa area. They proved the presence of six troglobiont species i.e. *Mesachorutes ojcowiensis*, *Catops tristis infernus*, *Choleva lederiana gracilentia*, *Porrhomma egeria*, *Arrhopalites pygmeus*, *Onychiurus alborufescens* and also determined the geographical distribution of these species.

The subsequent works by Skalski (1967, 1969) were dedicated to invertebrate fauna in the Tatra Mountains. In addition to the presented list of species, he also considered the relationship between the age of the cave and the number of troglobionts as an important factor influencing the species variety. Furthermore, he presented detailed information about the occurrence of *Onychiurus armatus* springtails in the Mylna and Czarna caves, *Hypena obsitalis* butterflies in the Mylna cave and *Exephanes ischioxanthus* hymenoptera in Szczelina Chochołowska.

In 1973, Skalski published an extensive paper on the research and observations conducted in the years 1957–1970 in 19 caves of the Częstochowa Upland. Using a

wide range of entomological methods (Barber traps, Tullgren funnels, entomological sieves and direct searches), he detected 83 species belonging to a few arthropod and molluscan orders. He extensively discussed ecological issues, also concerning troglonexenes, for example he paid special attention to describing the associations of arthropods living or resting on cave walls. The paper includes valuable data on reproduction, position and spread of individual species in the caves like characteristics of massive occurrence of *Choleva lederiana gracilenta* if there is high availability of food.

Apart from the above mentioned research published in the form of papers, presentations at Speleological Conferences, which have been taking place since 1965, give an update on the invertebrate cave fauna research. The first information can be found in the materials from 3rd/4th Speleological Conference (1971), where Skalski (1971) presented overview of terrestrial and aquatic fauna, named all the known species and compared the knowledge from various Polish cave regions.

In his subsequent paper, Skalski (1981) focused on known data of invertebrate fauna again. However, he put particular emphasis on dominant groups and tried to determine the reasons for underground sites colonisation. He emphasised the primary dominance of not only insects and springtails in the caves but also spiders, and analysed the conditions favourable to cave organisms, i.e. food accessibility and cave habitat as a shelter for fauna during the winter.

In 1975, Baranek and Powichrowski published an article about the cave fauna in Dolina Wodącej. Three caves of the valley, Jaskinia Źródłana (Psia), Jasknia Zegarowa and Jaskinia Mroczna, were discussed in the paper. The authors observed the associations of arthropods troglonexenes like numerous fly community, spiders (particularly *Meta* sp.) and other arachnids on the cave walls. Springtails and beetles of families Staphylinidae and Catopidae (Leiodidae) were recognised among the regular cave-dwelling species. The only troglobiont species recorded was *Porhomma moravicum* (currently *P. egeria*), which was observed in Jaskinia Mroczna.

Sanocka-Wołoszynowa (1981) on Kraków – Częstochowa Upland arachnids study added great value to the state of knowledge of invertebrate fauna exploration. The author examined 184 caves and shelters; 40 of them were examined in all four seasons. Samples were collected by means of Barber traps or direct search. As a result, 13000 specimens representing 186 species of spiders, arachnids and pseudoscorpions were collected. Two species of spiders recorded deserve special attention: troglobiontic *Porhomma egeria* (in the paper *P. moravicum*) and troglophilic *Meta menardi*. Among arachnids also harvestman *Ischyropsalis helwigii*, known earlier from the Sudety Mountains area, the observation of which in Kraków – Częstochowa Upland widened the range of its occurrence. The author in addition to the detailed list of species, carried out an ecological and zoocoenological analysis, for example, she distinguished communities of arachnids living in the litter, associations of wall arachnids and a deep-cave group of species with dominant species *Porrhomma egeria*.

At the 15th Speleological Conference, Sobiepanek (1985) described the results of the research conducted during Tatra Mountains caves inventory. During the research, the samples were collected by direct search or by means of Barber traps. As a result,

many taxa belonging to dipterans, beetles, trichopteran, millipedes, spiders, gastropods, springtails and earthworms were observed. During the 30th Speleological Conference, Gubała (1996) presented his paper about the results of an inventory of 131 caves and shelters in świętokrzyskie region.

The end of the 20th century provided new data to particular systematic groups. Pomorski (1992) focused on the springtail fauna in the Sudety Mountains caves and mines. In his study, Pomorski detected 34 species, seven of which were classified as troglobionts i.e. *Bonetogastrura cavicola*, *Schaefferia emucronata*, *Oligaphorura schoetti*, *Onychiurus ambulans*, *Onychiurus cebennarius*, *Oncopodura reyersdorfensis*, *Arrhopalites bifidus* and 10 as troglaphiles. Skalski (1994) noted the successful introduction of *Speonomus hydrophilus* to Jaskinia Dzwonnicza in Wyzyna Częstochowska.

Further papers were published after the year 2000. The studies by Maślak and Barczyk (2011) and Barczyk and Madej (2014) were devoted to cave mites. The first article refers to *Oribatida* dwelling in five Jurassic caves, i.e. Jaskinia Nietoperzowa, Jaskinia Wierna, Jaskinia Studnisko, Jaskinia Błotna and Jaskinia Pod Porzeczką, and their immediate surroundings. The study presented an analysis of faunistic similarities between the species and caves. Altogether 65 Orbatida species, including one typically cave dwelling species, were recorded. It was proven that the faunal composition of larger caves significantly differs from smaller ones. Communities of small caves, such as Jaskinia Błotna, Jaskinia Pod Porzeczką were similar to soil fauna communities. The species composition was mainly influenced by the accessibility of particular food sources (leaves, guano, wood) (Maślak and Barczyk 2011). The second paper refers to eight caves of the Kraków – Częstochowa Upland (Jaskinia Lodowa, Jaskinia poniżej Lodowej, Jaskinia Pod Porzeczką, Jaskinia Studnisko, Jaskinia Pod Sokołą, Jaskinia Jasna, Jaskinia Błotna and Jaskinia Schronisko koło Jaskini Lodowej), where 316 samples were collected. There were 270 samples collected from the immediate surroundings of the caves. As a result, the author identified 106 species from 13 families, including four species new in Polish fauna i.e. *Paragamasus arcuatus*, *Parasitus hortivagus*, *Pachylaelaps sublongisetis*, *Pachyglobolaelaps hallidayi* and troglobiont species recognised earlier in other caves. Significant differences in species composition between Acari communities inhabiting caves and cave surroundings were described.

Among the contemporary studies devoted to invertebrate fauna, Dumnicka and Płotek (2013) discussed the differences in invertebrate fauna between the caves Jaskinia Towarna and Jaskinia Dzwonnicza, with regards to microclimate conditions, organic matter content in the cave deposits and tourism intensity.

During the 49th Speleological Conference, Kocot – Zalewska (2015) presented the preliminary results of the research on Jaskinia Kroczycka fauna. The presentation included general data however indicated seven orders: butterflies, dipterans, spiders, beetles, trichopteran, mites and springtails. At the next Speleological Conference, Kocot – Zalewska (2016) presented the results of the observation of Jaskinia Towarna colonisation by *Speonomus normandi hydrophilus* of Leiodidae family. The beetle was introduced in the caves in 1982 and its natural place of occurrence is Arize Massif in Pyrenees.

In a contemporary paper, Kur et al. (2016) characterised the fauna of Jaskinia Szeptunów (Szmaragdowa). Based on the samples collected in the years 2005, 2006, 2010, 2014, 2015, 5 species of springtails, 2 species of Myriapoda, 1 spider species, 2 species of butterflies and mites were observed. The cave was opened in 1990 and the colonisation rate by living organisms was monitored.

At the 51st Speleological Conference, Kocot – Zalewska and Słupińska (2017) presented the discovery of a great population of *Choleva lederiana gracilenta*, which is endemic to Sokole Mountain caves, and presented detailed information about its quantity, sex ratio and cave positioning. During the same Speleological Conference, Dumnicka (2017) discussed the state of knowledge of invertebrate cave fauna of Polish Tatra Mountains based on literature data, mainly the works by Stach (1934, 1954) and Kowalski (1955).

Several short articles were devoted to interesting discoveries of invertebrate species found in caves (Dylewska and Błoszyk 2006, Kocot-Zalewska and Rozwałka 2018, Kasprzak 1973, Weiner 1990), however, several synthetic articles were also written, summarizing the state of knowledge and valorization of a valuable studied area (Błoszyk and Rozwałka 2008, Ochman 2004, Wołoszyn and Wójcik 1964).

Checklist of terrestrial invertebrate record in Polish caves

Based on published literature, 593 species of terrestrial invertebrate are recorded in Polish caves.

Insects are represented by 146 species. Respectively: Coleoptera 50 species, Diptera 60 species, Hymenoptera 18 species, Lepidoptera 10 species, Trichoptera 4 species, Siphonaptera 3 species, Thysanoptera 1 species. Detailed list of recorded species is presented in Table 1.

Table 1. The checklist of insects recorded in Polish caves.

Species	References
Coleoptera:	
<i>Acidota cruentata</i> Mannerheim, 1830	Ochman 2004, Skalski 1973a
<i>Acrotrichis intermedia</i> (Gillmeister, 1845) [= <i>Trichopteryx intermedia</i> ‡]	Pax and Maschke 1935
<i>Aleochara diversa</i> (J. Sahlberg, 1876)	Pax and Maschke 1935
<i>Aphodius fimetarius</i> (Linnaeus, 1758)	Pax and Maschke 1935
<i>Apocatops nigrita</i> (W.F. Erichson, 1837) [= <i>Catops nigrita</i> W.F. Erichson, 1837‡]	Pax and Maschke 1935
<i>Atheta fungi</i> (J.L.C. Gravenhorst, 1806)	Pax and Maschke 1935
<i>Atheta trinotata</i> (E.G. Kraatz, 1856)	Pax and Maschke 1935
<i>Cantharis rustica</i> C.F. Fallén, 1807	Pax and Maschke 1935
<i>Catops alpinus</i> Gyllenhal, 1827	Pax and Maschke 1935
<i>Catops fuliginosus</i> Erichson, 1837	Kowalski 1955
<i>Catops fuscus</i> (Panzer, 1794)	Pax and Maschke 1935
<i>Catops longulus</i> Kellner, 1846	Kowalski 1955, Pax and Maschke 1935
<i>Catops subfuscus</i> Kellner, 1846	Kowalski 1955, Pax and Maschke 1935, Skalski 1973a

Species	References
<i>Catops tristis tristis</i> (Panzer, 1794)	Kowalski 1955, Pax and Maschke 1935
<i>Catops tristis infernus</i> Szymczakowski, 1957	Ochman 2004, Skalski 1971, Skalski 1973a, Skalski 1973b, Skalski 1981, Skalski 1994-1995, Skalski 1994a, Skalski and Wójcik 1968, Szymczakowski 1957
<i>Choleva agilis</i> (Illiger, 1798)	Gubała 1996, Wołoszyn and Wójcik 1964
<i>Choleva angustata</i> (Fabricius, 1781)	Gubała 1996
<i>Choleva cisteloides</i> Frölich, 1799	Ochman 2004, Skalski 1973a
<i>Choleva elongata</i> (Paykull, 1798)	Pax and Maschke 1935
<i>Choleva glauca</i> Britten, 1918	Skalski 1967
<i>Choleva lederiana gracilentia</i> Szymczakowski, 1957	Kocot-Zalewska and Shupirńska 2017, Ochman 2004, Skalski 1971, Skalski 1973a, Skalski 1973b, Skalski 1981, Skalski 1994-1995, Skalski 1994a, Skalski and Wójcik 1968, Szymczakowski 1957
<i>Choleva nivalis</i> Kraatz, 1856 [= <i>Choleva bicolor</i> Jeannel, 1923 †]	Kowalski 1955, Skalski 1967
<i>Choleva (Cholevopsis) spadicea</i> (J. Sturm, 1839)	Pax and Maschke 1935
<i>Cryptophagus pilosus</i> Gyllenhal, 1827	Pax and Maschke 1935
<i>Duvaliopsis pilosella stobieckii</i> (Csiki, 1907)	Kowalski 1955, Skalski 1971
<i>Enicmus minutus</i> (Linnaeus, 1767)	Ochman 2004, Skalski 1973a
<i>Lathrobium pallidum</i> Nordmann, 1837	Pax and Maschke 1935
<i>Lesteva monticola</i> Kiesenwetter, 1847	Kowalski 1955
<i>Nebria tatraica</i> Miller, 1859	Kowalski 1955
<i>Ocalea badia</i> W.F. Erichson, 1837	Pax and Maschke 1935
<i>Omalium excavatum</i> Stephens, 1834	Kowalski 1955
<i>Omalium rivulare</i> Paykull, 1789	Kowalski 1955, Pax and Maschke 1935
<i>Omalium septentrionis</i> C.G. Thomson, 1857	Pax and Maschke 1935
<i>Othius myrmecophilus</i> Kiesenwetter, 1843	Ochman 2004, Skalski 1973a
<i>Otiorynchus scaber</i> (Linnaeus, 1758)	Kowalski 1955
<i>Philonthus (Philonthus) carbonarius</i> (Gravenhorst, 1802) [= <i>Philonthus varius</i> (Gyllenhal, 1810) †]	Skalski 1973a
<i>Poecilus lepidus lepidus</i> (Leske, 1785) [= <i>Pterostichus virens</i> (Müller, 1776) †]	Sobiepanek 1985
<i>Pselaphus beisei</i> J.F.W. Herbst, 1792	Pax and Maschke 1935
<i>Pterostichus niger</i> (Schaller, 1783)	Pax and Maschke 1935
<i>Quedius humeralis</i> Stephens, 1832	Kowalski 1955
<i>Quedius maurus</i> (Sahlberg, 1830)	Ochman 2004, Skalski 1973a
<i>Quedius mesomelinus</i> (Marshall, 1802)	Demel 1918, Gubała 1996, Kowalski 1955, Ochman 2004, Pax and Maschke 1935, Skalski 1973a, Skalski 1981, Skalski and Wójcik 1968
<i>Quedius ochropterus</i> Erichson, 1840	Kowalski 1955
<i>Speonomus normandi hydrophilus</i> Jeannel, 1907	Dumnicka and Plotek 2013, Kłasiński 2006, Kocot-Zalewska 2016, Skalski 1994a, Skalski 1994b
<i>Sphodrus leucophthalmus</i> (Linnaeus, 1758)	Gubała 1996
<i>Tachinus subterraneus</i> (Linnaeus, 1758)	Kowalski 1955
<i>Trechus latus</i> Putzeys, 1847	Kowalski 1955
<i>Trechus quadristriatus</i> (Schrank von Paula, 1781)	Pax and Maschke 1935
<i>Trichophya pilicornis</i> (L. Gyllenhal, 1810)	Pax and Maschke 1935
<i>Xylodromus concinnus</i> (Th. Marshall, 1802)	Pax and Maschke 1935
Diptera:	
<i>Amoebaleria spectabilis</i> (Loew, 1862)	Kowalski 1955
<i>Aphiochaeta rufipes</i> Meigen, 1804	Arndt 1921
<i>Apteromyia claviventris</i> (Strobl, 1909) [= <i>Limosina claviventris</i> Strobl, 1909 †]	Pax and Maschke 1935
<i>Bradysia forficulata</i> (Bezzi, 1914) [= <i>Neosciara forficulata</i> Bezzi, 1914 †]	Pax and Maschke 1935

Species	References
<i>Bolitophila ofnerea</i>	Sobiepanek 1985
<i>Calliphora vicina</i> Robineau-Desvoidy, 1830 [= <i>Calliphora erythrocephala</i> Meigen, 1826 ‡]	Pax and Maschke 1935
<i>Calliphora vomitoria</i> (Linnaeus, 1758)	Pax and Maschke 1935, Skalski 1973a, Skalski 1981
<i>Copromyza glacialis</i> (Meigen, 1830)	Sobiepanek 1985
<i>Copromyza nigra</i> (Meigen, 1830)	Sobiepanek 1985
<i>Copromyza nitida</i> (Meigen, 1830)	Sobiepanek 1985
<i>Crumomyia nitida</i> (Meigen, 1830)	Kowalski 1955
<i>Crumomyia nigra</i> (Meigen, 1830) [= <i>Borborus nigra</i> Meigen, 1830 ‡]	Pax and Maschke 1935
<i>Crumomyia glacialis</i> (Meigen, 1830)	Hajduk and Ogorzałek 1970, Skalski 1967
<i>Culex pipiens</i> Linnaeus, 1758	Arndt 1921, Hajduk and Ogorzałek 1970, Kowalski 1955, Pax and Maschke 1935, Skalski 1967, Skalski 1973a, Skalski 1981,
<i>Culiseta annulata</i> (Schrank, 1776)	Hajduk and Ogorzałek 1970, Pax and Maschke 1935, Skalski 1973a, Skalski 1981, Skalski and Wójcik 1968
<i>Cypselia nigra</i> Meigen †	Arndt 1921
<i>Cypselia suillina</i> †	Arndt 1921
<i>Diploneura florescens</i> (Turton, 1801) [= <i>Diploneura versicolor</i> Schmitz, 1929 ‡ = <i>Diploneura florea</i> (Fabricius, 1794) ‡]	Pax and Maschke 1935
<i>Drosophila (Sophophora) melanogaster</i> Meigen, 1830 [= <i>Drosophila fasciata</i> ‡]	Skalski 1973a
<i>Ecoptomera emarginata</i> Loew, 1862	Hajduk and Ogorzałek 1970, Kowalski 1955, Pax and Maschke 1935, Sobiepanek 1985
<i>Ecoptomera obscura</i> (Meigen, 1830)	Sobiepanek 1985
<i>Ecoptomera pallescens</i> (Meigen, 1830)	Hajduk and Ogorzałek 1970, Kowalski 1955, Skalski 1967
<i>Exechia indecisa</i> (Walker, 1856) [= <i>Exechiopsis indecisa</i> ‡]	Ochman 2004, Skalski 1973a, Skalski 1981, Skalski and Wójcik 1968
<i>Gymnomus caesioides</i> (Meigen, 1830) [= <i>Scolioecentra caesis</i> = <i>Heleomyza caesia</i> (Meigen, 1830) = <i>Amoebaleria caesia</i> (Meigen, 1830) ‡]	Arndt 1921, Hajduk and Ogorzałek 1970, Kowalski 1955, Pax and Maschke 1935, Sobiepanek 1985
<i>Gymnomus amplicornis</i> (Czerny, 1924) [= <i>Amoebaleria amplicornis</i> Czerny, 1924 ‡]	Skalski 1967
<i>Heleomyza captiosa</i> (Gorodkov, 1962)	Dumnicka and Płotek 2013, Sobiepanek 1985
<i>Heleomyza modesta</i> (Meigen, 1835)	Arndt 1921, Hajduk and Ogorzałek 1970, Kowalski 1955, Pax and Maschke 1935, Sobiepanek 1985, Skalski 1967
<i>Heleomyza serrata</i> (Linnaeus, 1758)	Arndt 1921, Hajduk and Ogorzałek 1970, Kowalski 1955, Ochman 2004, Pax and Maschke 1935, Skalski 1967, Skalski 1973a, Skalski 1981, Skalski and Wójcik 1968, Sobiepanek 1985,
<i>Heteromyza atricornis</i> Meigen, 1830 [= <i>Theleida atricornis</i> ‡]	Kowalski 1955
<i>Hydrophorus bipunctatus</i> (Lehmann, 1822)	Pax and Maschke 1935
<i>Hydrotaea dentipes</i> (Fabricius, 1805)	Pax and Maschke 1935
<i>Limonia nubeculosa</i> Meigen, 1804	Arndt 1921, Hajduk and Ogorzałek 1970
<i>Limonia silvatica</i> (Meigen, 1830) [= <i>Limosina silvatica</i> ‡]	Arndt 1921
<i>Megaselia albicaudata</i> (Wood, 1910)	Pax and Maschke 1935
<i>Megaselia angusta</i> (Wood, 1909)	Pax and Maschke 1935
<i>Megaselia pulicaria</i> (Fallen, 1823)	Pax and Maschke 1935
<i>Megaselia rufipes</i> (Meigen, 1804)	Pax and Maschke 1935
<i>Meiosimyza rorida</i> (Fallén, 1820) [= <i>Sapromyza rorida</i> Fallén, 1820 ‡]	Pax and Maschke 1935
<i>Mycetophila ruficollis</i> Meigen, 1818	Sobiepanek 1985
<i>Neuroctena anilis</i> Fallen, 1820 [= <i>Dryomyza anilis</i> Fallén, 1820 ‡]	Pax and Maschke 1935
<i>Oecotheca praecox</i> Loew, 1862	Arndt 1921

Species	References
<i>Phaonia populi</i> (Meigen, 1826)	Ochman 2004, Skalski 1973a, Skalski 1981, Skalski and Wójcik 1968
<i>Sarcophaga alpina</i> Zetterstedt, 1838 [= <i>Acrophaga alpina</i> Zetterstedt, 1838‡]	Pax and Maschke 1935
<i>Sciara atomaria</i> (Lynch Arribalzaga, 1892) [= <i>Neosciara vivida</i> Winnertz, 1867‡]	Pax and Maschke 1935
<i>Scoliocentra villosa</i> (Meigen, 1830)	Dumnicka and Plotek 2013, Ochman 2004, Skalski 1973a, Skalski 1981, Skalski and Wójcik 1968,
<i>Spelobia pseudosetaria</i> (Duda, 1918) [= <i>Limosina penetralis</i> Collin, 1925‡]	Pax and Maschke 1935
<i>Spelepta leptogaster</i> (Winnertz, 1863)	Pax and Maschke 1935, Sobiepanek 1985
<i>Sphaerophoria scripta</i> (Linnaeus, 1758)	Kowalski 1955
<i>Sylvicola fenestralis</i> (Scopoli, 1763) [= <i>Anisopus fenestralis</i> (Scopoli 1763) ‡]	Hajduk and Ogorzałek 1970
<i>Theobaldia alascaensis</i> Ludlow †	Kowalski 1955
<i>Tipula scripta</i> Meigen, 1830	Arndt 1921
<i>Trichocera hiemalis</i> (De Geer, 1776)	Pax and Maschke 1935
<i>Trichocera maculipennis</i> Meigen, 1818	Arndt 1923, Demel 1918, Ochman 2004, Pax and Maschke 1935, Skalski 1967, Skalski 1973a, Skalski 1981, Skalski and Wójcik 1968, Sobiepanek 1985
<i>Trichocera regelationis</i> (Linnaeus, 1758)	Pax and Maschke 1935
<i>Triphleba antricola</i> (Schmitz, 1918)	Pax and Maschke 1935
<i>Triphleba distinguenda</i> (Strobl, 1892) [= <i>Triphleba unicalcarata</i> (Becker, 1901) ‡]	Pax and Maschke 1935
<i>Triphleba hyalinata</i> (Meigen, 1830)	Pax and Maschke 1935
<i>Triphleba lyria</i> Schmitz, 1935	Pax and Maschke 1935
<i>Triphleba uncinata</i> Schmitz †	Pax and Maschke 1935
<i>Thoracocheata brachystoma</i> (Stenhammar, 1855)	Pax and Maschke 1935
Hymenoptera:	
<i>Amblytelus atratorius</i> (Villers, 1789) [= <i>Coelichneumon atratorius</i> ‡]	Arndt 1921
<i>Amblytelus quadripunctorius</i> Muller †	Kowalski 1955
<i>Aspilota nervosa</i> (Haliday, 1833)	Pax and Maschke 1935
<i>Blacus instabilis</i> Ruthe, 1861	Pax and Maschke 1935
<i>Diphyus monitorius</i> (Panzer, 1801)	Skalski 1973a
<i>Diphyus fossorius</i> (Linnaeus, 1758)	Skalski 1973a
<i>Exallonyx ater</i> (Gravenhorst, 1807) [= <i>Serphus filicornis</i> Kieffer, 1908 ‡]	Pax and Maschke 1935
<i>Exallonyx ligatus</i> Nees, 1834 [= <i>Serphus ligatus</i> Nees, 1834‡]	Pax and Maschke 1935
<i>Exephantes hilaris</i> Gravenhorst †	Hajduk and Ogorzałek 1970, Kowalski 1955, Pax and Maschke 1935
<i>Exephantes ischioxanthus</i> (Gravenhorst, 1829)	Skalski 1969, Skalski 1973a, Skalski 1981
<i>Formica fusca</i> Linnaeus, 1758	Pax and Maschke 1935
<i>Hemiteles fulvipes</i> Gravenhorst, 1929 †	Pax and Maschke 1935
<i>Ichneumon extensorius</i> Linnaeus, 1758	Pax and Maschke 1935
<i>Ichneumon gracilicornis</i> Gravenhorst, 1829	Pax and Maschke 1935
<i>Megastylus cruentator</i> Schiodte, 1839	Pax and Maschke 1935
<i>Mutilla europaea</i> Linnaeus, 1758	Hajduk and Ogorzałek 1970
<i>Proctotrypes gravidator</i> (Linnaeus, 1758)	Skalski 1981
<i>Tretoserphus laricis</i> (Haliday, 1839) [= <i>Cryptoserphus laricis</i> (Haliday, 1839) ‡]	Pax and Maschke 1935
Lepidoptera:	
<i>Aglais urticae</i> (Linnaeus, 1758) [= <i>Vanessa urticae</i> (Linnaeus, 1758) ‡]	Kowalski 1955, Pax and Maschke 1935, Skalski 1967, Skalski 1973a

Species	References
<i>Bomolocha obesalis</i> Treitschke 1828	Kowalski 1955, Skalski 1967
<i>Canadrina simulans</i> (Hufnagel, 1766) [= <i>Rhyacia simulans</i> (Hufnagel, 1766) ‡]	Skalski 1973a
<i>Hypena obsitalis</i> (Hübner, 1813)	Skalski 1969
<i>Hypena rostralis</i> (Linnaeus, 1758)	Skalski 1973a
<i>Monopis laevigella</i> (Denis & Schiffermüller, 1775) [= <i>Monopis rusticella</i> (Hübner, 1813) ‡]	Skalski 1973a
<i>Nudaria mundana</i> (Linnaeus, 1760)	Skalski 1973a
<i>Scoliopteryx libatrix</i> (Linnaeus, 1758)	Baranek and Powichrowski 1975, Demel 1918, Dumnicka and Plotek 2013, Hajduk and Ogorzałek 1970, Kowalski 1955, Kur et al. 2016, Pax and Maschke 1935, Skalski 1967, Skalski 1973a, Skalski 1981, Skalski 1994-1995, Skalski and Wójcik 1968, Sobiepanek 1985, Wołoszyn and Wójcik 1964
<i>Triphosa dubitata</i> (Linnaeus, 1758)	Arndt 1921, Baranek and Powichrowski 1975, Demel 1918, Dumnicka and Plotek 2013, Hajduk and Ogorzałek 1970, Kowalski 1955, Kur et al. 2016, Pax and Maschke 1935, Pax 1937, Skalski 1967, Skalski 1973a, Skalski 1981, Skalski 1994-1995, Skalski and Wójcik 1968, Sobiepanek 1985, Wołoszyn and Wójcik 1964,
<i>Vanessa io</i> (Linnaeus, 1758)	Arndt 1921, Dumnicka and Plotek 2013, Kowalski 1955, Pax and Maschke 1935, Skalski 1967, Skalski 1973a, Wołoszyn and Wójcik 1964,
Trichoptera:	
<i>Micropterna nycterobia</i> McLachlan, 1875	Arndt 1921, Hajduk and Ogorzałek 1970
<i>Micropterna sequax</i> McLachlan, 1875	Arndt 1921
<i>Micropterna testacea</i> (Gmelin, 1789)	Arndt 1921, Hajduk and Ogorzałek 1970
<i>Stenophylax permistus</i> McLachlan, 1895	Arndt 1921, Baranek and Powichrowski 1975, Demel 1918, Hajduk and Ogorzałek 1970, Kowalski 1955, Ochman 2004, Skalski 1973a, Skalski 1981, Skalski and Wójcik 1968, Sobiepanek 1985,
Siphonaptera:	
<i>Ctenophthalmus solutus</i> Jordan & Rothschild, 1920	Skalski 1981
<i>Ischnopsyllus hexactenus</i> (Kolenati, 1856)	Pax and Maschke 1935
<i>Nosopsyllus fasciatus</i> (Bosc, 1800)	Skalski 1981
Thysanoptera	
<i>Chirothrips manicatus</i> Haliday, 1836	Pax and Maschke 1935

† – status of the species name is unclear, ‡ – name published in original paper

Arachnids are the most often represented group of terrestrial invertebrate with 317 recorded species. Among the arachnids the mites (Acari) are represented by 189 species, spiders (Araneae) by 103 species. Remaining orders of Arachnids (Opiliones and Pseudoscorpionida) are represented by 20 and 5 species respectively. Detailed list of arachnids recorded in Polish caves is presented in Table 2.

Table 2. The checklist of arachnids recorded in Polish caves.

Species	References
Acari	
<i>Adoristes ovatus</i> (Koch, 1839)	Maślak and Barczyk 2011
<i>Ameroseius furcatus</i> Karg, 1971	Barczyk and Madej 2014
<i>Ameroseius plumea</i> Oudemans, 1930	Barczyk and Madej 2014
<i>Ameroseius plumigerus</i> Oudemans, 1930	Barczyk and Madej 2014

Species	References
<i>Anachipteria deficiens</i> Grandjean, 1932	Maślak and Barczyk 2011
<i>Antemoseius bacatus</i> Athias-Henriot, 1961	Barczyk and Madej 2014
<i>Arctoseius brevicheles</i> Karg, 1969	Barczyk and Madej 2014
<i>Arctoseius cetratus</i> (Sellnick, 1940)	Barczyk and Madej 2014
<i>Arctoseius magnanalis</i> Evans, 1958	Barczyk and Madej 2014
<i>Arctoseius venustus</i> (Berlese, 1917)	Barczyk and Madej 2014
<i>Asca aphidioides</i> (Linnaeus, 1758)	Barczyk and Madej 2014
<i>Atropacarus striculus</i> (Koch, 1835)	Maślak and Barczyk 2011
<i>Autogneta longilamellata</i> (Michael, 1885)	Maślak and Barczyk 2011
<i>Berniniella bicarinata</i> (Paoli, 1908)	Maślak and Barczyk 2011
<i>Carabodes femoralis</i> (Nicolet, 1855)	Maślak and Barczyk 2011
<i>Carabodes ornatus</i> Štokán, 1925	Maślak and Barczyk 2011
<i>Cepheus dentatus</i> (Michael, 1888)	Maślak and Barczyk 2011
<i>Ceratozetes gracilis gracilis</i> (Michael, 1884)	Maślak and Barczyk 2011
<i>Ceratozetes mediocris</i> Berlese, 1908	Maślak and Barczyk 2011
<i>Chamobates (Xiphobates) voigsi</i> (Oudemans, 1902)	Maślak and Barczyk 2011
<i>Chamobates cuspidatus</i> (Michael, 1884)	Maślak and Barczyk 2011, Pax and Maschke 1935
<i>Chamobates pusillus</i> (Berlese, 1895)	Maślak and Barczyk 2011
<i>Chamobates subglobulus</i> (Oudemans, 1900)	Maślak and Barczyk 2011
<i>Coproglyphus stammeri</i> (Türk & Türk, 1957)	Skalski 1994a
<i>Cultroribula bicultrata</i> (Berlese, 1905)	Maślak and Barczyk 2011
<i>Cyrtolaelaps chiropterae</i> Karg, 1971	Barczyk and Madej 2014
<i>Cyrtolaelaps mucronatus</i> (G. & R. Canestrini, 1881)	Barczyk and Madej 2014
<i>Cyta latirostris</i> (Hermann, 1804)	Pax and Maschke 1935
<i>Damaeus gracilipes</i> (Kulczyński, 1902) [= <i>Belba gracilipes</i> Kulczyński‡]	Pax and Maschke 1935
<i>Dendrolaelaps (Punctodendrolaelaps) arvicolus</i> (Leitner, 1949)	Barczyk and Madej 2014
<i>Dendrolaelaps (Punctodendrolaelaps) rotundus</i> (Hirschm, 1960)	Barczyk and Madej 2014
<i>Dissorhina ornata</i> (Oudemans, 1900)	Maślak and Barczyk 2011, Skalski 1973a
<i>Eugamasus cavernicola</i> Trägårdh, 1912	Barczyk and Madej 2014
<i>Eugamasus furcatus</i> (G. et R. Canestrini, 1882)	Barczyk and Madej 2014
<i>Eupelops acromios</i> (Hermann, 1804)	Maślak and Barczyk 2011
<i>Eupelops plicatus</i> (Koch, 1835)	Maślak and Barczyk 2011
<i>Euphthiracarus cribnarius</i> (Berlese, 1904)	Maślak and Barczyk 2011
<i>Euryparasitus emarginatus</i> (Koch, 1839)	Barczyk and Madej 2014
<i>Eviphis ostrinus</i> (Koch, 1836)	Barczyk and Madej 2014
<i>Fosseremus laciniatus</i> (Berlese, 1905)	Maślak and Barczyk 2011
<i>Foveacheles (Proxistella) terricola</i> (Koch, 1835) [= <i>Rhagidia terricola</i> Koch, 1935 ‡]	Pax and Maschke 1935, Pax 1937
<i>Gaeolaelaps aculeifer</i> (Canestrini, 1883)	Barczyk and Madej 2014
<i>Gaeolaelaps brevipilis</i> (Bernhard, 1969)	Barczyk and Madej 2014
<i>Gaeolaelaps nollii</i> (Karg, 1962)	Barczyk and Madej 2014
<i>Gamasellodes bicolor</i> (Berlese, 1918)	Barczyk and Madej 2014
<i>Gamasellus montanus</i> (Willmann, 1936)	Barczyk and Madej 2014
<i>Gamasellus spiricornis</i> (G. & R. Canestrini, 1882)	Barczyk and Madej 2014
<i>Gamasodes spiniger</i> (Trägårdh, 1910)	Barczyk and Madej 2014
<i>Geholaspis (Geholaspis) longispinosus</i> (Kramer, 1876)	Barczyk and Madej 2014
<i>Geholaspis (Longicheles) mandibularis</i> (Berlese, 1904)	Barczyk and Madej 2014
<i>Globozetes birulai</i> (Kulczynski, 1902)	Maślak and Barczyk 2011
<i>Haemogamasus nidi</i> Michael, 1892	Barczyk and Madej 2014
<i>Hemileius initialis</i> (Berlese, 1908)	Maślak and Barczyk 2011
<i>Holoparasitus calcaratus</i> (Koch, 1839)	Barczyk and Madej 2014

Species	References
<i>Holoparasitus excisus</i> (Berlese, 1906)	Barczyk and Madej 2014
<i>Holoparasitus intermedius</i> (Holzmann, 1969)	Barczyk and Madej 2014
<i>Hypoaspis (Alloparasitus) oblonga</i> (Halbert, 1915)	Barczyk and Madej 2014
<i>Hypoaspis (Alloparasitus) sardoa</i> (Berlese, 1911)	Barczyk and Madej 2014
<i>Hypochthonius luteus</i> Oudemans, 1917	Maślak and Barczyk 2011
<i>Ixodes ricinus</i> Linnaeus, 1758	Skalski 1973a, Skalski 1981
<i>Ixodes vespertilionis</i> Koch, 1844	Skalski 1973a, Skalski 1981
<i>Kunstdamaeus tecticola</i> (Michael, 1888)	Maślak and Barczyk 2011
<i>Lasioseius lawrencei</i> Evans, 1957	Barczyk and Madej 2014
<i>Lasioseius muricatus</i> (Koch, 1839)	Barczyk and Madej 2014
<i>Lauroppia beskidyiensis</i> (Niemi et Skubala, 1993)	Maślak and Barczyk 2011
<i>Lauroppia falcata marginedentata</i> (Strenzke, 1951)	Maślak and Barczyk 2011
<i>Lauroppia maritima</i> (Willmann, 1928)	Maślak and Barczyk 2011
<i>Leptogamasus alstoni</i> (Bhattacharyya, 1963)	Barczyk and Madej 2014
<i>Leptogamasus parvulus</i> (Berlese, 1903)	Barczyk and Madej 2014
<i>Leptogamasus tectegynellus</i> (Athias-Henriot, 1967)	Barczyk and Madej 2014
<i>Licneremaeus lichophorus</i> (Michael, 1882)	Maślak and Barczyk 2011
<i>Liebstadia longior</i> (Berlese, 1908)	Maślak and Barczyk 2011
<i>Liochthonius hystericinus</i> (Forslund, 1942)	Maślak and Barczyk 2011
<i>Macrocheles (Macrholaspis) dentatus</i> (Evans & Browning, 1956)	Barczyk and Madej 2014
<i>Macrocheles (Macrholaspis) recki</i> (Bregetova & Koroleva, 1960)	Barczyk and Madej 2014
<i>Macrocheles (Macrocheles) tardus</i> (Koch, 1841)	Barczyk and Madej 2014
<i>Macrocheles carinatus</i> (Koch, 1839)	Barczyk and Madej 2014
<i>Macrocheles montanus</i> (Willmann, 1951)	Barczyk and Madej 2014
<i>Macronyssus ellipticus</i> (Kolenati, 1856) [= <i>Liponissus ellipticus</i> Kolenati, 1856‡]	Pax and Maschke 1935
<i>Metabelba (Parametabelba) italica</i> (Sellnick, 1931)	Maślak and Barczyk 2011
<i>Metabelba pulverulenta</i> (Koch, 1839)	Maślak and Barczyk 2011
<i>Minunthozetes pseudofisiger</i> (Schweizer, 1922)	Maślak and Barczyk 2011
<i>Moritzoppia keilbachi</i> (Moritz, 1969)	Maślak and Barczyk 2011
<i>Moritzoppia uncarinata</i> (Paoli, 1908)	Maślak and Barczyk 2011
<i>Multioppia glabra</i> (Mihelčič, 1955)	Maślak and Barczyk 2011
<i>Nicoletiella denticulata</i> (Schränk, 1776)	Pax and Maschke 1935, Pax 1937
<i>Ololaelaps placentula</i> (Berlese, 1887)	Barczyk and Madej 2014
<i>Olopachys suecicus</i> Sellnick, 1950	Barczyk and Madej 2014
<i>Oppiella nova</i> (Oudemans, 1902)	Maślak and Barczyk 2011
<i>Oribatella calcarata</i> (Koch, 1835)	Maślak and Barczyk 2011
<i>Oribatella meridionalis</i> (Berlese, 1908)	Pax and Maschke 1935, Pax 1937
<i>Oribellopsis cavaticus</i> (Kunst, 1962)	Maślak and Barczyk 2011
<i>Pachydellus furcifer</i> (Oudemans, 1903)	Barczyk and Madej 2014
<i>Pachydellus ineptus</i> (Hirschmann & Krauss, 1965)	Barczyk and Madej 2014
<i>Pachydellus sculptus</i> Berlese, 1920	Barczyk and Madej 2014
<i>Pachyglobaelaps hallidayi</i> Masán, 2014	Barczyk and Madej 2014
<i>Pachylaelaps (Longipachylaelaps) cf. longisetis</i> Halbert, 1915	Barczyk and Madej 2014
<i>Pachylaelaps (Longipachylaelaps) sublongisetis</i> Koroleva, 1977	Barczyk and Madej 2014
<i>Pachylaelaps (Pachylaelaps) imitans</i> Berlese, 1920	Barczyk and Madej 2014
<i>Pachylaelaps (Pachylaelaps) littoralis</i> Halbert, 1915	Barczyk and Madej 2014
<i>Pachylaelaps (Pachylaelaps) pectinifer</i> (G. & R. Canestrini, 1881)	Barczyk and Madej 2014
<i>Pachylaelaps (Pachylaelaps) troglophilus</i> Willmann, 1940	Barczyk and Madej 2014
<i>Pachyseius humeralis</i> Berlese, 1910	Barczyk and Madej 2014

Species	References
<i>Pantelozetes cavaticus</i> (Kunst, 1962) [= <i>Oribella cavatica</i> Kunst, 1962‡]	Skalski 1994a
<i>Pantelozetes paolii</i> (Oudemans, 1913)	Maślak and Barczyk 2011
<i>Paragamasus (Aclerogamasus) alpestris</i> (Berlese, 1904)	Barczyk and Madej 2014
<i>Paragamasus (Aclerogamasus) similis</i> (Willmann, 1953)	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) arcuatus</i>	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) brevicornis</i>	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) brevipes</i> (Berlese, 1905)	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) digitulus</i> (Karg, 1963)	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) homopodooides</i> (Athias-Henriot, 1967)	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) lapponicus</i> (Trägårdh, 1910)	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) mediocris</i> Berlese, 1904	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) misellus</i> (Berlese, 1903)	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) runcatellus</i> (Berlese, 1903)	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) runciger</i> (Berlese, 1904)	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) truncus</i> Schweizer, 1961	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) vagabundus</i> (Karg, 1968)	Barczyk and Madej 2014
<i>Paragamasus (Anidogamasus) wasmanni</i> (Oudemans, 1902)	Barczyk and Madej 2014
<i>Parasitus loricatus</i> (Wankel, 1861) [= <i>Parasitus niveus</i> ‡ = <i>Eugamasus loricatus</i> Wankel, 1861‡]	Barczyk and Madej 2014, Pax and Maschke 1935, Skalski 1967, Skalski 1973a, Skalski 1981
<i>Parasitus hortivagus</i> (Berlese, 1903)	Barczyk and Madej 2014
<i>Parasitus kraepelini</i> Berlese, 1903 [= <i>Eugamasus kraepelini</i> Berlese, 1903‡]	Pax and Maschke 1935
<i>Parasitus maschkeae</i> Willmann, 1936	Skalski 1967
<i>Parazercon radiatus</i> (Berlese, 1910)	Barczyk and Madej 2014
<i>Pergamasus (Thenargamasus) barbarus</i> (Berlese, 1904)	Barczyk and Madej 2014
<i>Pergamasus (Pergamasus) brevicornis</i> Berlese, 1903	Barczyk and Madej 2014
<i>Pergamasus (Pergamasus) crasipes</i> Berlese, 1906	Barczyk and Madej 2014
<i>Pergamasus (Pergamasus) mediocris</i> Berlese, 1904	Barczyk and Madej 2014
<i>Pergamasus robustus</i> (Oudemans, 1902)	Skalski 1967
<i>Phaulodiaspis advena</i> (Trägårdh, 1992)	Dylewska and Błoszyk 2006, Skalski 1981
<i>Phthiracarus (Archiphthiracarus) bryobius</i> Jacot, 1930	Maślak and Barczyk 2011
<i>Pilogalumna crassiclava</i> (Berlese, 1914)	Maślak and Barczyk 2011
<i>Pilogalumna tenuiclava</i> (Berlese, 1908)	Maślak and Barczyk 2011
<i>Poecilochirus carabi</i> G. & R. Caenestrini, 1882	Barczyk and Madej 2014
<i>Porrhostaspis lunulata</i> Muller, 1859	Barczyk and Madej 2014
<i>Proctolaelaps pygmaeus</i> (Muller, 1860)	Barczyk and Madej 2014
<i>Prozercon fimbriatus</i> (Koch, 1839)	Barczyk and Madej 2014
<i>Prozercon kochi</i> Sellnick, 1943	Barczyk and Madej 2014
<i>Prozercon sellnicki</i> Halaskova, 1963	Barczyk and Madej 2014
<i>Prozercon traegardhi</i> (Halbert, 1923)	Barczyk and Madej 2014
<i>Punctoribates punctum</i> (Koch, 1839)	Maślak and Barczyk 2011
<i>Pygmeophorus spinosus</i> Kramer, 1877	Pax and Maschke 1935, Skalski 1981
<i>Quadroppia quadricarinata</i> (Michael, 1885)	Maślak and Barczyk 2011
<i>Ramusella (Insculptoppia) furcata</i> (Willmann, 1928)	Maślak and Barczyk 2011
<i>Rhagidia reflexa</i> var. <i>volmsdorfensis</i> †	Pax and Maschke 1935, Pax 1937
<i>Rhinoppia hygrophila</i> (Mahunka, 1987)	Maślak and Barczyk 2011
<i>Rhinoppia nasuta</i> (Moritz, 1965)	Maślak and Barczyk 2011
<i>Rhinoppia obsoleta</i> (Paoli, 1908)	Maślak and Barczyk 2011
<i>Rhinoppia subpectinata</i> (Oudemans, 1900)	Maślak and Barczyk 2011
<i>Rhodacarellus apophyseus</i> Karg, 1971	Barczyk and Madej 2014
<i>Rhodacarellus silesiacus</i> Willmann, 1935	Barczyk and Madej 2014
<i>Rhodacarus calcurulatus</i> Berlese, 1921	Barczyk and Madej 2014

Species	References
<i>Rhodacarus coronatus</i> Berlese, 1921	Barczyk and Madej 2014
<i>Rhodacarus mandibularis</i> Berlese, 1921	Barczyk and Madej 2014
<i>Scheloberibates laevigatus</i> (Koch, 1835)	Maślak and Barczyk 2011
<i>Sphaerozetes piriformis</i> (Nicolet, 1855)	Maślak and Barczyk 2011
<i>Spinturnix murinus</i> Walckenaer †	Pax and Maschke 1935
<i>Subiasella (Lalmoppia) quadrimaculata</i> (Evans, 1952)	Maślak and Barczyk 2011
<i>Suctobelba altwateri</i> Moritz, 1970	Maślak and Barczyk 2011
<i>Suctobelba lapidaria</i> Moritz, 1970	Maślak and Barczyk 2011
<i>Suctobelba trigona</i> (Michael, 1888)	Maślak and Barczyk 2011
<i>Suctobelbella (Flagrosuctobelba) alloenasuta</i> Moritz, 1971	Maślak and Barczyk 2011
<i>Suctobelbella similis</i> (Forsslund, 1941)	Maślak and Barczyk 2011
<i>Tectocephus alatus</i> Berlese, 1913	Maślak and Barczyk 2011
<i>Tectocephus velatus</i> (Michael, 1880)	Maślak and Barczyk 2011
<i>Unduloribates undulates</i> (Berlese, 1914)	Maślak and Barczyk 2011
<i>Veigaia cerva</i> (Kramer, 1876)	Barczyk and Madej 2014
<i>Veigaia exigua</i> (Berlese, 1916)	Barczyk and Madej 2014
<i>Veigaia kochi</i> (Trägårdh, 1901)	Barczyk and Madej 2014
<i>Veigaia nemorensis</i> (Koch, 1839)	Barczyk and Madej 2014
<i>Veigaia planicola</i> (Berlese, 1892)	Barczyk and Madej 2014
<i>Veigaia transisalae</i> (Oudemans, 1902)	Barczyk and Madej 2014
<i>Vulgarogamasus kraepelini</i> (Berlese, 1905)	Barczyk and Madej 2014
<i>Vulgarogamasus maschkeae</i> Willmann, 1936	Barczyk and Madej 2014
<i>Vulgarogamasus remberti</i> (Oudemans, 1912)	Barczyk and Madej 2014
<i>Vulgarogamasus oudemansi</i> (Berlese, 1904)	Barczyk and Madej 2014
<i>Zercon arcuatus</i> Trägårdh, 1931	Barczyk and Madej 2014
<i>Zercon baloghi</i> Sellnick, 1958	Barczyk and Madej 2014
<i>Zercon berleseii</i> Sellnick, 1958	Barczyk and Madej 2014
<i>Zercon curiosus</i> Trägårdh, 1910	Barczyk and Madej 2014
<i>Zercon fageticola</i> Halaskova, 1969	Barczyk and Madej 2014
<i>Zercon peltatus</i> Koch, 1836	Barczyk and Madej 2014
<i>Zercon romagniolus</i> Sellnick, 1944	Barczyk and Madej 2014
<i>Zercon storkani</i> Halaskova, 1969	Barczyk and Madej 2014
<i>Zercon triangularis</i> Koch, 1836	Barczyk and Madej 2014
<i>Zercon vacuus</i> Koch, 1839	Barczyk and Madej 2014
<i>Zerconopsis remiger</i> (Kramer, 1876)	Barczyk and Madej 2014
<i>Zetorchestes micronychus micronychus</i> (Berlese, 1883)	Maślak and Barczyk 2011
Araneae:	
<i>Agroeca brunnea</i> (Blackwall, 1833)	Sanocka-Wołoszynowa 1981
<i>Agyneta rurestris</i> (C. L. Koch, 1836)	Sanocka-Wołoszyn 1963
[= <i>Meioneta rurestris</i> C. L. Koch, 1836 †]	
<i>Agyneta subtilis</i> (Pickard-Cambridge, 1863)	Sanocka-Wołoszynowa 1981
<i>Amaurobius fenestralis</i> (Ström, 1768)	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Anguliphantes angulipalpis</i> (Westring, 1851) [= <i>Lepthyphantes angulipalpis</i> †]	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Anguliphantes monticola</i> (Kulczynski, 1882) [= <i>Lepthyphantes monticola</i> †]	Czajka and Hajduk 1978, Ochman 2004, Rozwałka et al. 2010, Sanocka-Wołoszynowa 1981, Skalski 1973a, Skalski 1981, Skalski 1994-1995, Skalski 1994a
<i>Anyphaena accentuata</i> (Walckenaer, 1802)	Sanocka-Wołoszyn 1963
<i>Araneus diadematus</i> Clerck, 1757	Ochman 2004, Sanocka-Wołoszyn 1963, Skalski 1973a
<i>Bathypantes nigrinus</i> (Westring, 1851)	Sanocka-Wołoszynowa 1981
<i>Callobius claustrarius</i> (Hahn, 1833) [= <i>Amaurobius claustrarium</i> Hahn †]	Sanocka-Wołoszyn 1963

Species	References
<i>Centromerita bicolor</i> (Blackwall, 1833)	Sanocka-Wołoszynowa 1981
<i>Centromerus cavernarum</i> (Koch, 1872) [= <i>Centromerus jacksoni</i> Denis, 1952 = <i>Taranucnus cavernarum</i> Simon, 1884‡]	Ochman 2004, Pax 1937, Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Skalski 1981
<i>Centromerus sellarius</i> (Simon, 1884)	Sanocka-Wołoszynowa 1981
<i>Centromerus sylvaticus</i> (Blackwall, 1841)	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Wołoszyn and Wójcik 1964,
<i>Cicurina cicur</i> (Fabricius, 1793) [= <i>Cicurina cicurea</i> ‡]	Arndt 1921, Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Clubiona brevipes</i> Blackwall, 1841 [= <i>Microclubiona brevipes</i> ‡]	Sanocka-Wołoszynowa 1981
<i>Clubiona frutetorum</i> L. Koch, 1867	Pax and Maschke 1935
<i>Coelotes terrestris</i> (Wider, 1834)	Ochman 2004, Skalski 1973a
<i>Cryphoea silvicola</i> (Koch, 1834)	Sanocka-Wołoszynowa 1981, Sobiepanek 1985
<i>Cybaeus angustiarum</i> Koch, 1868	Pax and Maschke 1935, Sobiepanek 1985
<i>Dicymbium nigrum brevisetosum</i> (Blackwall, 1834)	Sanocka-Wołoszynowa 1981
<i>Diplocephalus cristatus</i> (Blackwall, 1833)	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Diplocephalus picinus</i> (Blackwall, 1841)	Sanocka-Wołoszynowa 1981
<i>Diplostyla concolor</i> (Wider, 1834)	Sanocka-Wołoszynowa 1981
<i>Drassodes lapidosus</i> (Walcknaer, 1802)	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Drassodes pubescens</i> (Thorell, 1856)	Sanocka-Wołoszynowa 1981
<i>Eratigena atrica</i> (Koch, 1843) [= <i>Tegenaria atrica</i> ‡]	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Erigone atra</i> Blackwall, 1833	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Erigone dentipalpis</i> (Wider, 1834)	Sanocka-Wołoszynowa 1981
<i>Formiphantes lephthyphantiformis</i> (Strand, 1907) [= <i>Lepthyphantes pisai</i> ‡]	Błoszyk and Rozwałka 2008, Sanocka-Wołoszynowa 1981
<i>Gnaphosa bicolor</i> (Hahn, 1833)	Sanocka-Wołoszynowa 1981
<i>Gonatum rubens</i> (Blackwall, 1833)	Sanocka-Wołoszynowa 1981
<i>Gongylidium rufipes</i> (Linnaeus, 1758)	Sanocka-Wołoszynowa 1981
<i>Habnia pusilla</i> Koch, 1841	Ochman 2004, Sanocka-Wołoszynowa 1981
<i>Harpactea hombergi</i> (Scopoli, 1763)	Błoszyk and Rozwałka 2008, Sanocka-Wołoszynowa 1981
<i>Harpactea rubicunda</i> (Koch, 1838)	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Helophora insignis</i> (Blackwall, 1841)	Sanocka-Wołoszynowa 1981
<i>Histopona torpida</i> (Koch, 1837)	Sanocka-Wołoszynowa 1981
<i>Hypomma bituberculatum</i> (Wider, 1834)	Sanocka-Wołoszynowa 1981
<i>Inermocoelotes inermis</i> (Koch, 1855)	Sanocka-Wołoszynowa 1981
<i>Kaestneria dorsalis</i> (Wider, 1834)	Sanocka-Wołoszynowa 1981
<i>Labulla thoracica</i> (Wider, 1834)	Czajka and Hajduk 1978, Hajduk and Ogorzałek 1970, Sanocka-Wołoszynowa 1981
<i>Lepthyphantes leprosus</i> (Ohlert, 1865)	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Skalski 1973a, Wołoszyn and Wójcik 1964,
<i>Lepthyphantes minutus</i> (Blackwall, 1833)	Sanocka-Wołoszynowa 1981
<i>Lepthyphantes nodifer</i> Simon, 1884	Ochman 2004, Sanocka-Wołoszynowa 1981
<i>Leptorhoptrum robustum</i> (Westring, 1851)	Sanocka-Wołoszynowa 1981
<i>Liocranum rupicola</i> (Walckenaer, 1830)	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Linyphia triangularis</i> (Clerck, 1757)	Sanocka-Wołoszyn 1963
<i>Macrargus rufus</i> (Wider, 1834)	Sanocka-Wołoszynowa 1981
<i>Mansuphantes arciger</i> (Kulczyński, 1882) [= <i>Lepthyphantes arciger</i> ‡]	Błoszyk and Rozwałka 2008, Sanocka-Wołoszynowa 1981
<i>Mansuphantes mansuetus</i> (Thorell, 1875) [= <i>Lepthyphantes mansuetus</i> ‡]	Błoszyk and Rozwałka 2008, Sanocka-Wołoszynowa 1981
<i>Maso sundevalli</i> (Westring, 1851)	Czajka and Hajduk 1978, Sanocka-Wołoszynowa 1981

Species	References
<i>Megalepthyphantes nebulosus</i> (Sundevall, 1830) [= <i>Lepthyphantes nebulosus</i> ‡]	Arndt 1921, Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Skalski 1973a, Wołoszyn and Wójcik 1964
<i>Meta menardi</i> (Latreille, 1804)	Błoszyk and Rozwalka 2008, Czajka and Hajduk 1978, Demel 1918, Dumnicka and Płotek 2013, Gubała 1996, Hajduk and Ogorzałek 1970, Kowalski 1955, Kur et al. 2016, Ochman 2004, Pax and Maschke 1935, Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Skalski 1967, Skalski 1973a, Skalski 1981, Skalski 1994-1995, Sobiepanek 1985, Wołoszyn and Wójcik 1964
<i>Metellina merianae</i> (Scopoli, 1763)	Arndt 1921, Czajka and Hajduk 1978, Demel 1918, Sanocka-Wołoszyn 1963, Skalski 1981, Wołoszyn and Wójcik 1964
<i>Metellina segmentata</i> (Clerck, 1757) [= <i>Meta reticulata</i> ‡]	Arndt 1921
<i>Micrargus herbigradus</i> (Blackwall, 1854)	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981,
<i>Microneta variata</i> (Blackwall, 1841)	Sanocka-Wołoszynowa 1981
<i>Nesticus cellulanus</i> (Clerck, 1757)	Błoszyk and Rozwalka 2008, Dumnicka and Płotek 2013, Ochman 2004, Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Skalski 1973a, Wołoszyn and Wójcik 1964
<i>Obscuriphantes obscurus</i> (Blackwall, 1841) [= <i>Lepthyphantes obscurus</i> ‡]	Sobiepanek 1985
<i>Oedothorax agrestis</i> (Blackwall, 1853)	Sanocka-Wołoszynowa 1981
<i>Oedothorax apicatus</i> (Blackwall, 1850)	Sanocka-Wołoszynowa 1981
<i>Oedothorax gibbosus</i> (Blackwall, 1841)	Sanocka-Wołoszynowa 1981
<i>Palliduphantes pallidus</i> (O. Pickard-Cambridge, 1871) [= <i>Lepthyphantes pallidus</i> ‡]	Ochman 2004, Sanocka-Wołoszynowa 1981
<i>Pardosa agrestis</i> (Westring, 1861)	Sanocka-Wołoszyn 1963
<i>Pardosa monticola</i> (Clerck, 1757)	Sanocka-Wołoszynowa 1981
<i>Pardosa nigra</i> (Koch, 1834)	Sobiepanek 1985
<i>Pelecopsis parallela</i> (Wider, 1834)	Sanocka-Wołoszynowa 1981
<i>Pholcus opilionoides</i> (Schrank, 1781)	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Wołoszyn and Wójcik 1964
<i>Phrurolithus festivus</i> (Koch, 1835)	Sanocka-Wołoszynowa 1981
<i>Pocadicnemis pumila</i> (Blackwall, 1841)	Sanocka-Wołoszynowa 1981
<i>Pociloneta variegata</i> (Blackwall, 1841) [= <i>Pociloneta globose</i> ‡]	Sanocka-Wołoszynowa 1981
<i>Porrhomma convexum</i> (Westring, 1851)	Błoszyk and Rozwalka 2008, Czajka and Hajduk 1978, Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Wołoszyn and Wójcik 1964
<i>Porrhomma egeria</i> Simon, 1884 [= <i>Porrhomma moravicum</i> Miller & Kratochvíl, 1940 ‡]	Błoszyk and Rozwalka 2008, Demel 1918, Ochman 2004, Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Skalski 1971, Skalski 1973a, Skalski 1981, Skalski 1994-1995, Skalski and Wójcik 1968, Wołoszyn and Wójcik 1964
<i>Porrhomma pallidum</i> Jackson, 1913	Ochman 2004, Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Skalski 1973a, Wołoszyn and Wójcik 1964
<i>Porrhomma pygmaeum</i> (Blackwall, 1834)	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Porrhomma rosenhaueri</i> (L. Koch, 1872)	Pax and Maschke 1935, Pax 1937
<i>Robertus lividus</i> (Blackwall, 1836)	Sanocka-Wołoszynowa 1981
<i>Scotargus pilosus</i> Simon, 1913 [= <i>Macrargus strandi</i> (Schenkel, 1934) ‡]	Sanocka-Wołoszynowa 1981
<i>Scotophaeus blackwalli</i> (Thorell, 1856)	Sanocka-Wołoszynowa 1981

Species	References
<i>Segestria senoculata</i> (Linnaeus, 1758)	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Sosticus loricatus</i> (L. Koch, 1866) [= <i>Scotophaeus loricatus</i> L. Koch, 1866 ‡]	Sanocka-Wołoszyn 1963
<i>Steatoda bipunctata</i> (Linnaeus, 1758)	Sanocka-Wołoszynowa 1981
<i>Stemonyphantes lineatus</i> (Linnaeus, 1758)	Sanocka-Wołoszyn 1963
<i>Syedra gracilis</i> (Menge, 1869)	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Tegenaria domestica</i> (Clarck, 1757)	Arndt 1921, Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Skalski 1973a,
<i>Tegenaria ferruginea</i> (Panzer, 1804)	Ochman 2004, Pax and Maschke 1935, Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Skalski 1973a
<i>Tegenaria silvestris</i> Koch 1872	Błoszyk and Rozwalka 2008, Sanocka-Wołoszynowa 1981
<i>Tenuiphantes alacris</i> (Blackwall, 1853) [= <i>Lepthyphantes alacris</i> ‡]	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Tenuiphantes cristatus</i> (Menge, 1866) [= <i>Lepthyphantes cristatus</i> ‡]	Sanocka-Wołoszynowa 1981
<i>Tenuiphantes flavipes</i> (Blackwall, 1854) [= <i>Lepthyphantes flavipes</i> ‡]	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981, Wołoszyn and Wójcik 1964
<i>Tenuiphantes mendei</i> (Kulczyński, 1887) [= <i>Lepthyphantes mendei</i> ‡]	Sanocka-Wołoszynowa 1981, Sobiepanek 1985
<i>Tenuiphantes tenebricola</i> (Wider, 1834) [= <i>Lepthyphantes tenebricola</i> ‡]	Sanocka-Wołoszyn 1963, Sanocka-Wołoszynowa 1981
<i>Tenuiphantes tenuis</i> (Blackwall, 1852) [= <i>Lepthyphantes tenuis</i> ‡]	Sanocka-Wołoszynowa 1981
<i>Teranucnus cavernarum</i> L. Koch †	Pax and Maschke 1935
<i>Tetragnatha pinicola</i> L. Koch, 1870	Sanocka-Wołoszyn 1963
<i>Textrix denticulata</i> (Olivier, 1789)	Sanocka-Wołoszynowa 1981
<i>Theridion impressum</i> Koch, 1881	Skalski 1973a
<i>Thyreostbenius parasiticus</i> (Westring, 1851)	Sanocka-Wołoszynowa 1981
<i>Trochosa ruricola</i> (De Geer, 1778)	Sanocka-Wołoszynowa 1981
<i>Zodarion germanicum</i> (C. L. Koch, 1837)	Sanocka-Wołoszyn 1963
<i>Zora spinimana</i> (Sundevall, 1833)	Sanocka-Wołoszynowa 1981
<i>Zygiella montana</i> (Koch, 1834)	Sobiepanek 1985
Opiliones:	
<i>Gyas annulatus</i> (Olivier, 1791)	Sobiepanek 1985
<i>Ischyropsalis hellwigi</i> (Panzer, 1794)	Błoszyk and Rozwalka 2008, Kocot-Zalewska and Rozwalka 2018, Sanocka-Wołoszynowa 1981
<i>Ischyropsalis manicata</i> Koch, 1869 [= <i>Ischyropsalis milleri</i> = <i>Ischyropsalis dacica</i> Roewer, 1916‡]	Kowalski 1955, Skalski 1967, Sobiepanek 1985
<i>Lacinius ephippiatus</i> (Koch, 1835)	Sanocka-Wołoszynowa 1981
<i>Leiobunum blackwalli</i> Meade, 1861	Arndt 1921, Sanocka-Wołoszynowa 1981
<i>Leiobunum rotundum</i> (Latreille, 1798)	Błoszyk and Rozwalka 2008, Sanocka-Wołoszynowa 1981
<i>Leiobunum rupestre</i> (Herbst, 1799)	Arndt 1921, Kowalski 1955, Ochman 2004, Sanocka-Wołoszynowa 1981, Skalski 1967, Skalski 1973a, Sobiepanek 1985
<i>Mitopus morio</i> (Fabricius, 1779)	Błoszyk and Rozwalka 2008, Sanocka-Wołoszynowa 1981, Sobiepanek 1985
<i>Mitostoma chrysomelas</i> (Hermann, 1804)	Błoszyk and Rozwalka 2008, Sanocka-Wołoszynowa 1981
<i>Nemastoma lugubre</i> (Müller, 1776)	Sanocka-Wołoszynowa 1981
<i>Oligolophus tridens</i> (Koch, 1836)	Błoszyk and Rozwalka 2008, Sanocka-Wołoszynowa 1981
<i>Opilio parietinus</i> (De Geer, 1778)	Błoszyk and Rozwalka 2008, Pax and Maschke 1935, Sanocka-Wołoszynowa 1981
<i>Opilio saxatilis</i> Koch, 1839	Sanocka-Wołoszynowa 1981
<i>Paranemastoma kochi</i> (Nowicki, 1870)	Sobiepanek 1985

Species	References
<i>Paranemastoma quadripunctatum</i> (Perty, 1833)	Ochman 2004, Sanocka-Wołoszynowa 1981, Skalski 1994-1995, Skalski 1994a,
<i>Phalangium opilio</i> Linnaeus, 1758	Błoszyk and Rozwałka 2008, Pax and Maschke 1935, Sanocka-Wołoszynowa 1981
<i>Platybunus bucephalus</i> (Koch, 1835)	Sobiepanek 1985
<i>Rilaena triangularis</i> (Herbst, 1799)	Sanocka-Wołoszynowa 1981
<i>Siro carpaticus</i> Rafalski, 1956	Skalski 1971
<i>Trogulus tricarinatus</i> (Linnaeus, 1758)	Sanocka-Wołoszynowa 1981
Pseudoscorpionida:	
<i>Chelifer cancroides</i> (Linnaeus, 1758)	Błoszyk and Rozwałka 2008, Sanocka-Wołoszynowa 1981
<i>Chthonius (Ephippiochthonius) tetrachelatus</i> (Preyssler, 1790)	Błoszyk and Rozwałka 2008, Sanocka-Wołoszynowa 1981
<i>Neobisium (Neobisium) carcinoides</i> (Hermann, 1804) [= <i>Neobisium muscorum</i> ‡]	Błoszyk and Rozwałka 2008, Kowalski 1955, Sanocka-Wołoszynowa 1981
<i>Neobisium (Neobisium) erythrodactylum</i> (Koch, 1873)	Błoszyk and Rozwałka 2008, Sanocka-Wołoszynowa 1981
<i>Neobisium (Neobisium) sylvaticum</i> (Koch, 1835)	Kowalski 1955, Sanocka-Wołoszynowa 1981

† – status of the species name is unclear, ‡ – name published in original paper

The remaining Arthropoda groups are represented as follows: Collembola 79 species, Diplura 1 species, Chilopoda 1 species, Diplopoda 8 species, Symphyla 1 species, Isopoda 9 species. Among other invertebrates recorded in Polish caves 11 species are represented by Oligochaeta and 20 species by Mollusca. Detailed list of species is presented in Table 3.

Table 3. The checklist of other Arthropoda and invertebrates recorded in Polish caves.

Species	References
Collembola	
<i>Anurida granaria</i> (Nicolet, 1847)	Pomorski 1992
<i>Archaphorura serratotuberculata</i> (Stach, 1933) [= <i>Onychiurus serratotuberculata</i> Stach, 1933 ‡]	Stach 1954
<i>Arrhopalites bifidus</i> Stach, 1945	Pomorski 1992, Skalski 1971
<i>Arrhopalites principalis</i> Stach, 1945	Pomorski 1992, Stach 1956
<i>Arrhopalites pygmaeus</i> (Wankel, 1860)	Demel 1918, Kowalski 1955, Pax and Maschke 1935, Ochman 2004, Skalski 1971, Skalski 1973a, Skalski 1973b, Skalski 1981, Skalski and Wójcik 1968, Stach 1919, Stach 1939, Wołoszyn and Wójcik 1964 Stach 1956
<i>Arrhopalites sericus</i> Gisin, 1947	Ochman 2004, Pomorski 1996
<i>Bonetogastrura cavicola</i> (Börner, 1901) [= <i>Hypogastrura cavicola</i> ‡]	Ochman 2004, Pomorski 1992, Skalski 1971, Skalski 1973a, Skalski 1973b, Skalski 1981
<i>Ceratophysella armata</i> (Nicolet, 1841)	Kowalski 1955, Pomorski 1996, Skalski 1967
<i>Ceratophysella bengtsoni</i> (Agren, 1904)	Stach 1949
<i>Ceratophysella granulata</i> Stach, 1949	Kowalski 1955, Stach 1949
<i>Ceratophysella michalinae</i> Skarżyński, 2005	Skarżyński 2005
<i>Cryptopygus bipunctatus</i> (Axelson, 1903)	Pomorski 1992
<i>Desoria fennica</i> (Reuter, 1895) [= <i>Isotoma fennica</i> ‡]	Kowalski 1955, Stach 1947
<i>Desoria hiemalis</i> (Schoett, 1893) [= <i>Isotoma hiemalis</i> Schött, 1893 ‡]	Kowalski 1955

Species	References
<i>Desoria olivacea</i> (Tullberg, 1871) [= <i>Isotoma olivacea</i> ‡]	Kowalski 1955, Stach 1939, Stach 1947
<i>Desoria violacea</i> (Tullberg, 1876) [= <i>Isotoma violacea</i> ‡]	Kowalski 1955, Stach 1947
<i>Deuterophorura cebennaria</i> (Gisin, 1956)	Kur et al. 2016
<i>Dicyrtomina ornata</i> (Nicolet, 1842)	Ochman 2004
<i>Entomobrya multifasciata</i> (Tullberg, 1871)	Stach 1963
<i>Folsomia fimetaria</i> (Linnaeus, 1758)	Pomorski 1992, Stach 1939
<i>Folsomia lawrencei</i> Rusek, 1984	Ochman 2004, Pomorski 1992, Pomorski 1996
<i>Folsomia candida</i> Willem, 1902 [= <i>Folsomia listeri</i> Bagnall, 1939 ‡]	Kur et al. 2016, Ochman 2004, Pomorski 1992, Skalski 1973a, Skalski 1981, Skalski and Wójcik 1968, Stach 1947
<i>Folsomia quadrioculata</i> (Tullberg, 1871)	Kowalski 1955, Ochman 2004, Pomorski 1992, Pomorski 1996, Skalski 1973a, Skalski and Wójcik 1968, Stach 1939, Stach 1947
<i>Heteromurus nitidus</i> (Templeton, 1835)	Arndt 1921, Demel 1918, Kur et al. 2016, Pax and Maschke 1935, Pomorski 1992, Skalski 1981, Stach 1919, Wołoszyn and Wójcik 1964
<i>Hymenaphorura creatricis</i> Pomorski, 1990	Pomorski 1992
<i>Hymenaphorura nova</i> Pomorski, 1990	Pomorski 1992
<i>Hymenaphorura polonica</i> Pomorski, 1990	Pomorski 1992
<i>Hypogastrura armata</i> (Nicolet, 1842)	Arndt 1921, Ochman 2004
<i>Hypogastrura purpurascens</i> (Lubbock, 1868)	Ochman 2004, Pax and Maschke 1935, Pomorski 1992, Pomorski 1996
<i>Isotoma notabilis</i> Schäffer, 1896	Kowalski 1955, Pomorski 1992, Pomorski 1996, Skalski 1973a, Skalski 1981, Ochman 2004, Stach 1939, Stach 1947
<i>Isotoma propinqua</i> Axelson, 1902	Skalski 1973a, Ochman 2004
<i>Isotomiella minor</i> (Schaffer, 1896)	Ochman 2004, Pomorski 1992, Skalski 1973a, Stach 1939, Stach 1947
<i>Lepidocyrtus albus</i> Packard, 1873	Demel 1918, Stach 1919,
<i>Lepidocyrtus cyaneus</i> Tullberg, 1871	Pax and Maschke 1935
<i>Lepidocyrtus lanuginosus</i> (Gmelin, 1788)	Pax and Maschke 1935
<i>Megalothorax incertus</i> Börner, 1903	Ochman 2004, Pomorski 1992, Skalski 1973a
<i>Megalothorax minimus</i> Willem, 1900	Ochman 2004, Pomorski 1992, Pomorski 1996, Skalski 1973a, Stach 1939, Stach 1957
<i>Mesachorutes ojcoviensis</i> Stach, 1918	Skalski 1969, Skalski 1971, Skalski 1973a, Skalski 1981, Skalski 1994a, Skalski and Wójcik 1968, Stach 1919
<i>Mesaphorura hylophila</i> Rusek, 1982	Ochman 2004, Pomorski 1996
<i>Mesaphorura krausbaueri</i> Börner, 1901	Pomorski 1992, Skalski 1973a
<i>Mesogastrura ojcoviensis</i> Stach, 1919 [= <i>Troglogastrura ojcoviensis</i> ‡]	Demel 1918, Stach 1919, Stach 1949
<i>Metaphorura affinis</i> (Börner, 1903)	Pomorski 1996, Ochman 2004
<i>Micranurida pygmaea</i> Börner, 1901	Pomorski 1992, Pomorski 1996, Ochman 2004, Stach 1949
<i>Neanura muscorum</i> (Templeton 1835)	Pomorski 1992
<i>Neeelus murinus</i> Folsom, 1896	Stach 1957
<i>Oligaphorura schoetti</i> (Lie-Pettersen, 1896)	Pomorski 1992, Skalski 1971
<i>Oncopodura reyersdorfensis</i> (Stach, 1936)	Pomorski 1992, Skalski 1971
<i>Onychiurus ambulans</i> (Linnaeus, 1758)	Skalski 1971
<i>Onychiurus cebennarius</i> Gisin, 1956	Pomorski 1992
<i>Onychiurus denisi</i> Stach, 1934	Kowalski 1955, Pomorski 1992, Stach 1939, Stach 1954

Species	References
<i>Onychiurus fimetarius</i> (Linnaeus, 1767)	Arndt 1921, Kowalski 1955, Pax and Maschke 1935, Skalski 1967, Stach 1954
<i>Onychiurus granulatus</i> Stach, 1930	Kowalski 1955, Ochman 2004, Pomorski 1992, Skalski 1973a, Skalski 1981, Skalski and Wójcik 1968, Stach 1939, Stach 1954
<i>Onychiurus rectospinatus</i> Stach, 1922	Stach 1954
<i>Onychiurus sibiricus</i> Tullberg, 1876 †	Kowalski 1955, Stach 1954
<i>Onychiurus scotarius</i> Gisin, 1954	Pomorski 1992
<i>Onychiurus tuberculatus</i> Moniez, 1891	Stach 1954
<i>Pogononathellus flavescens</i> (Tullberg, 1871)	Ochman 2004, Pomorski 1992
<i>Pogonognathellus longicornis</i> (Muller, 1776) [= <i>Tomocerus longicornis</i> Lubbock ‡]	Pax and Maschke 1935
<i>Protaphoruna alborufescens</i> (Vogler, 1895) [= <i>Onychiurus alborufescens</i> ‡]	Skalski 1971, Skalski 1973a, Skalski 1973b, Skalski 1981, Skalski and Wójcik 1968
<i>Proptaphoruna armata</i> (Tullberg, 1869) [= <i>Onychiurus armatus</i> ‡]	Arndt 1921, Demel 1918, Gubała 1996, Kowalski 1955, Ochman 2004, Pax and Maschke 1935, Pomorski 1992, Pomorski 1996, Skalski 1967, Skalski 1969, Skalski 1973a, Skalski 1981, Skalski and Wójcik 1968, Sobiepanek 1985, Stach 1919, Stach 1939, Stach 1954, Wołoszyn and Wójcik 1964
<i>Protaphoruna austriaca</i> (Butschek, 1948)	Pomorski 1992
<i>Protaphoruna campata</i> (Gisin, 1952)	Pomorski 1992
<i>Protaphoruna janosik</i> Weiner, 1977	Weiner 1990
<i>Pseudosinella alba</i> (Packard, 1873)	Skalski 1973a
<i>Pseudosinella pettersemi</i> Börner, 1901	Pomorski 1992
<i>Pseudisotoma monochaeta</i> (Kos, 1942)	Stach 1947
<i>Pseudisotoma sensibilis</i> (Tullberg, 1876)	Ochman 2004, Pomorski 1996
<i>Schaefferia emucronata</i> Absolon, 1900	Arndt 1921, Pomorski 1992, Skalski 1971, Stach 1939, Stach 1949
<i>Sinella hoefii</i> Schaeffer, 1896 †	Arndt 1921
<i>Sminthurinus elegans</i> (Fitch, 1863)	Ochman 2004, Skalski 1973a
<i>Tetrodontophora bielensis</i> (Waga, 1842)	Arndt 1921, Kowalski 1955, Pax and Maschke 1935, Pomorski 1992
<i>Tomocerus flavescens</i> Tullberg, 1871	Kowalski 1955, Pax and Maschke 1935, Skalski 1973a, Skalski and Wójcik 1968, Stach 1939
<i>Tomocerus minor</i> (Lubbock, 1862)	Pomorski 1992
<i>Tomocerus vulgaris</i> (Tullberg, 1871)	Arndt 1921, Kur et al. 2016
<i>Willemia intermedia</i> Mills, 1934	Pomorski 1992
<i>Willowsia buskii</i> (Lubbock, 1870)	Ochman 2004, Pomorski 1996
<i>Willowsia nigromaculata</i> (Lubbock, 1873)	Ochman 2004, Pomorski 1996
<i>Xenylla boernerii</i> Axelson, 1905	Ochman 2004, Skalski 1973a
<i>Xenylla brevicauda</i> Tullberg, 1869	Stach 1949
Diplura:	
<i>Campodea staphylinus</i> Westwood, 1842	Arndt 1921
Chilopoda:	
<i>Lithobius mutabilis</i> Koch, 1862	Kowalski 1955
<i>Blaniulus guttulatus</i> (Fabricius, 1798)	Kur et al. 2016
<i>Glomeris hexasticha</i> Brandt, 1833	Kowalski 1955
<i>Julus luscus</i> Meinert, 1868	Arndt 1921
<i>Leptoilulus trilobatus</i> (Verhoeff, 1894)	Pax and Maschke 1935, Pax 1937
<i>Mastigophorophyllon saxonicum</i> Verhoeff, 1916	Pax and Maschke 1935
<i>Mycogona germanica</i> (Verhoeff, 1892) [= <i>Orthochordeuma germanica</i> ‡]	Pax and Maschke 1935, Pax 1937

Species	References
<i>Ochogona caroli</i> (Rothenbuhler, 1900) [= <i>Ceratosoma caroli</i> ‡]	Pax and Maschke 1935, Pax 1937
<i>Strongylosoma stigmatosum stigmatosum</i> (Eichwald, 1830)	Sobiepanek 1985
Symphyla:	
<i>Scutigera immaculata</i> (Newport, 1845)	Kowalski 1955
Isopoda:	
<i>Cylisticus convexus</i> (De Geer, 1778)	Kur et al. 2016, Pax and Maschke 1935, Pax 1937, Skalski 1973a
<i>Hyloniscus vividus</i> (Koch, 1841)	Pax and Maschke 1935, Pax 1937
<i>Mesoniscus graniger</i> (Frivaldszky, 1865)	Piksa and Farkas 2007
<i>Porcellio spinicornis</i> Say, 1818	Skalski 1973a
<i>Porcellio scaber</i> Latreille, 1804	Woloszyn and Wójcik 1964
<i>Porcellium conspersum</i> (Koch, 1841)	Pax and Maschke 1935
<i>Protracheoniscus politus</i> (Koch, 1841) [= <i>Porcellio politus</i> Koch, 1841 ‡]	Pax and Maschke 1935
<i>Trachoniscus wächleri</i>	Kowalski 1955
<i>Trachelipus affinis</i> (Koch, 1841) [= <i>Trachelipus wächleri</i> (Strouhal, 1951) ‡]	Skalski 1967
Oligochaeta:	
<i>Achaeta eiseni</i> (Vejdovsky, 1878)	Dumnicka 1977
<i>Buchholzia appendiculata</i> (Buchholz, 1862)	Dumnicka 1977, Skalski 1981
<i>Dendrobaena alpina</i> (Rosa, 1884)	Sobiepanek 1985
<i>Dendrodrilus rubidus</i> (Savigny, 1826) [= <i>Dendrobaena rubida</i> (Savigny, 1826) ‡]	Dumnicka 1977
<i>Enchytraeus polonicus</i> Dumnicka, 1977	Dumnicka 1977, Skalski 1981, Skalski 1994a
<i>Enchytraeus buchholzi</i> Vejdovsky, 1878	Dumnicka 1977, Skalski 1981
<i>Enchytraeus dominicae</i> Dumnicka, 1976	Dumnicka 1977, Skalski 1981, Skalski 1994a
<i>Fridericia bulbosa</i> (Rosa, 1887)	Dumnicka 1977, Skalski 1981
<i>Fridericia ratzeli</i> (Eisen, 1872)	Kasprzak 1973
<i>Henlea ventriculosa</i> (d'Udekem, 1854)	Dumnicka 1977
<i>Marionina argentea</i> (Michaelsen, 1889)	Dumnicka 1977
Mollusca:	
<i>Aegopinella nitens</i> (Michaud, 1831)	Sobiepanek 1985
<i>Arion subfuscus</i> (Draparnaud, 1805)	Ochman 2004, Skalski 1973a, Sobiepanek 1985
<i>Arianta arbustorum</i> (Linnaeus, 1758)	Kowalski 1955
<i>Armiger crista</i> (Linnaeus, 1758) [= <i>Gyraulus crista</i> ‡]	Woloszyn and Wójcik 1964
<i>Cepaea hortensis</i> (Müller, 1774)	Skalski 1973a
<i>Chilostoma cingulella</i> Rossmässler, 1837 [= <i>Helicigona cingulella</i> ‡]	Kowalski 1955, Sobiepanek 1985
<i>Chondrina clienta</i> (Westerlund, 1883)	Kowalski 1955, Sobiepanek 1985
<i>Clausilia dubia</i> Draparnaud, 1805	Sobiepanek 1985
<i>Cochlodina laminata</i> (Montagu, 1803)	Skalski 1973a
<i>Discus (Gonyodiscus) rotundatus</i> (Müller, 1774)	Skalski 1973a
<i>Helicella obvia</i> (Menke, 1828)	Skalski 1973a
<i>Helicigona faustina</i> (Rossmässler, 1835)	Skalski 1973a
<i>Helix pomatia</i> Linnaeus, 1758	Pax and Maschke 1935
<i>Isognomostoma isognomostomos</i> (Schroter, 1784)	Skalski 1973a
<i>Laciniaria plicata</i> (Draparnaud, 1801)	Skalski 1973a
<i>Lehmania marginata</i> (Müller, 1774)	Sobiepanek 1985
<i>Limax cinereoniger</i> Wolf, 1803	Ochman 2004, Skalski 1973a
<i>Monachoides incarnatus</i> (Müller, 1774) [= <i>Perforatella incernata</i> ‡]	Skalski 1973a
<i>Oxychilus glaber</i> (Rossmässler, 1835)	Dumnicka and Płotek 2013, Ochman 2004, Skalski 1973a, Skalski 1981
<i>Oxychilus depressus</i> (Sterki, 1880)	Ochman 2004, Skalski 1973a, Skalski and Wójcik 1968

† – status of the species name is unclear, ‡ – name published in original paper

Summary

Based on presented data, it can be noticed that researchers' interest in terrestrial invertebrate fauna, both historically and contemporarily, is relatively low in Poland. In the span of 100 years, just over 50 published papers have been focused on the terrestrial invertebrate fauna of Polish caves although the presence of 593 species has been reported. Such a low interest could be caused by the conviction that it is not worth involving in the research of fauna that lacks spectacular troglobionts. Once the fauna of Polish caves gains greater interest of academics from various groups, we will learn more about this most mysterious world.

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