



Improvements in the knowledge of the myriapod fauna of southern Germany between 1988 and 2005 (Myriapoda: Chilopoda, Diplopoda, Pauropoda, Symphyla)

JÖRG SPELDA

Abstract

The present paper provides a checklist of the Chilopoda, Diplopoda, Pauropoda and Symphyla presently known in Baden-Wuerttemberg and Bavaria, including new records, taxonomic notes and nomenclatorial changes. 49 chilopod, 91 diplopod, 7 pauropod and 6 symphylan species are currently known from Bavaria, 45 chilopod, 71 diplopod, 20 pauropod and 12 symphylan species from Baden-Wuerttemberg. The following species have been recorded for Germany for the first time: Chilopoda: *Harpolithobius anodus*, *Henia brevis*, *Lithobius glacialis*, *Schendyla tyrolensis*, Diplopoda: *Brachyiulus lusitanus*, *Cylindroiulus salicivorus*, *Halleinosoma noricum*. The following nomenclatorial changes are proposed: *Lithobius geyeri* syn. nov. (of *L. mutabilis*), *L. valesiacus* stat. nov. (upgraded from *L. lusitanus valesiacus*), *Schendyla tyrolensis* comb. nov. (of *Geophilus tyrolensis*), *Schendyla montana* syn. nov. (of *S. tyrolensis*), *Geophilus glacialis* syn. nov., *G. glocknerensis* syn. nov., *G. g. moellensis* syn. nov. (all of *G. alpinus*), *G. rhenanus* stat. nov. (upgraded from *G. proximus rhenanus*), *Glomeris malmivaga* stat. nov. (upgraded from *Glomeris ornata malmivaga*), *Julus alemannicus glacialis* syn. nov. (of *Leptoiulus simplex*), *Orobainosoma pinivagum* syn. nov. (of *Haasea flavesens*), *Rhymogona hessei* (upgraded from *Macheiriophoron silvaticum hessei*). Three species of the genus *Rhymogona* (*R. serrata*, *R. verhoeffi* and *R. wehrana*) have been revalidated.

1. Introduction

Local faunistic treatments provide the basis for ecological evaluations and the development of Red Lists. Between 1988 and 2005 the author has made extensive collections in the German states of Baden-Wuerttemberg and Bavaria and proposed Red Lists for them (Spelda 1999b, 2004). Several nomenclatorial changes (e.g. Hoess 2000) have taken place since the last complete overview of the myriapods from south-western Germany (Spelda 1991). Such a list does not exist for Bavaria. The present paper re-addresses this problem by giving a complete, critical overview of the species occurring in the two states.

2. Materials and methods

The evaluation is based on the author's cartography database (see Spelda 2005). It includes own results and records from literature. As they formed the basis for the author's thesis (Spelda 1999c), the literature records are quite complete for south-western Germany, especially for Baden-Wuerttemberg, but rather fragmentary for Bavaria and other countries and states. With the atlas of Pedrolí-Christen (1993), an excellent comparison exists for the millipedes of Switzerland.

The tabular checklist (Tab. 1) shows the known distribution in four geographical units. The first two columns show the distribution in Baden-Wuerttemberg and Bavaria respectively. For higher taxa, from family upward, species numbers are given. For species or subspecies eliminated from the counting of species numbers for reasons mentioned in the text, the record is given in brackets. The third and fourth column show the known state of recording in neighbouring countries and include species that occur up to about 50 km from the border of the two formerly mentioned countries. Their main function is to show species that might occur in Baden-Wuerttemberg and Bavaria, but have not yet been found. The last two columns do not provide a complete overview, but mainly reflect the content of the database. The column »adjacent German states« includes the southern parts of Rhineland-Palatinate, Hesse, Thuringia and south-western Saxony. »Adjacent foreign countries« covers western France (Alsace, northern Jura), northern Switzerland, north-western Austria (states of Vorarlberg, Tyrol, Salzburg and western Upper Austria) and western Bohemia. In several common species no precise localities are given in literature. Thus original material of Verhoeff, represented in the ZSM collection, is included under records from literature.

In the faunistic part of this report localities are characterised by the nearest small village and the co-ordinates. Co-ordinates are given as latitude and longitude in fractions of degrees according to the World Geodetic System (WGS84). Unlike special national grids this allows an easy adoption by worldwide geographical information systems (GIS). Records without a collector given were made by the author.

The following acronyms have been adopted for the institutions involved:

LFU BW – Landesanstalt für Umweltschutz (= Institution for Environmental Protection) in Baden-Wuerttemberg, Karlsruhe, Germany;

LFUBY – Landesanstalt für Umweltschutz (= Institution for Environmental Protection) in Bayern, Augsburg, Germany;

LNK – Landessammlung für Naturkunde, Karlsruhe, Germany (= Staatliches Museum für Naturkunde, Karlsruhe);

MNHNP – Museum National d'Histoire Naturelle, Paris, France;

ZMUC – Zoological Museum, University of Copenhagen, Denmark;

ZSM – Zoologische Staatssammlung, Munich, Germany.

Tab. 1 Checklist of the myriapods from southern Germany and adjacent countries (X = own record, F = first record during own investigations, L = record from literature; species with records in brackets are excluded from the counts of species numbers).

taxon	Baden-Württemberg	Bavaria	adjacent German states	adjacent foreign countries
class Chilopoda	45 species	49 species		
order Scutigeraida	1 species			
family Scutigeridae	1 species			
<i>Scutigera coleoptrata</i> (Linnaeus, 1758)	LX		L	LX
order Lithobiida	26 species	32 species		
family Henicopidae	1 species	1 species		
<i>Lamyctes emarginatus</i> (Newport, 1844)	LX	LX		L
family Lithobiidae	25 species	31 species		
<i>Eupolybothrus grossipes</i> (C. L. Koch, 1847)		L		
<i>Eupolybothrus tridentinus</i> (Fanzago, 1874)	LX	LX		LX
<i>Harpolithobius anodus</i> (Latzel, 1880)		F		
<i>Lithobius aeruginosus</i> L. Koch, 1862	LX	LX	X	LX
<i>Lithobius agilis</i> C. L. Koch, 1847	LX	LX	L	LX
<i>Lithobius austriacus</i> (Verhoeff, 1937)		LX	L	L
<i>Lithobius borealis</i> Meinert, 1868	F	LX		L
<i>Lithobius calcaratus</i> C. L. Koch, 1844	LX	LX	LX	L
<i>Lithobius crassipes</i> L. Koch, 1862	LX	LX	LX	LX
<i>Lithobius curtipes</i> C. L. Koch, 1847	LX	LX	X	
<i>Lithobius cyrtopus</i> Latzel, 1880	(L)			L
<i>Lithobius dentatus</i> C. L. Koch, 1844	LX	LX	LX	LX
<i>Lithobius erythrocephalus</i> C. L. Koch, 1847	L	LX	L	L
<i>Lithobius forficatus</i> (Linnaeus, 1758)	LX	LX	LX	LX
<i>Lithobius glacialis</i> Verhoeff, 1937		F		LX
<i>Lithobius lapidicola</i> Meinert, 1872	LX	LX		LX
<i>Lithobius latro</i> Meinert, 1872		LX		LX
<i>Lithobius lucifugus</i> L. Koch, 1862	F	F		LX
<i>Lithobius macilentus</i> L. Koch, 1862	LX	LX	LX	LX
<i>Lithobius macrocentrus</i> Attems, 1949				L
<i>Lithobius melanops</i> Newport, 1845	LX	LX		X
<i>Lithobius micropodus</i> (Matic, 1980)				L
<i>Lithobius microps</i> Meinert, 1868	LX	F	X	LX
<i>Lithobius mutabilis</i> L. Koch, 1862	LX	LX	LX	LX
<i>Lithobius muticus</i> C. L. Koch, 1847	LX	LX	X	LX
<i>Lithobius nodulipes</i> Latzel, 1880	LX	LX	X	L
<i>Lithobius pelidnus</i> Haase, 1880	LX	LX	X	L
<i>Lithobius piceus</i> L. Koch, 1862	LX	LX	LX	LX
<i>Lithobius punctulatus</i> C. L. Koch, 1847		LX		LX
<i>Lithobius pygmaeus</i> Latzel, 1880	LX	L		X
<i>Lithobius subtilis</i> Latzel, 1880	LX	LX	X	LX

taxon	Baden- Württemberg	Bavaria	adjacent German states	adjacent foreign countries
<i>Lithobius tenebrosus</i> Meinert, 1872	LX	LX	L	L
<i>Lithobius tricuspis</i> Meinert, 1872	LX	F	LX	LX
<i>Lithobius valesiacus</i> (Verhoeff, 1935)	F	LX	X	L
order Scolopendrida	3 species	2 species		
family Scolopendridae				
<i>Scolopendra cingulata</i> Latreille, 1829				L
family Cryptopidae	3 species	2 species		
<i>Cryptops anomalans</i> Newport, 1844	F			L
<i>Cryptops hortensis</i> Donovan, 1810	LX	X	LX	LX
<i>Cryptops parisi</i> Brölemann, 1920	LX	LX	LX	LX
order Geophilida	15 species	15 species		
family Himantariidae	1 species	1 species		
<i>Stigmatogaster subterraneus</i> (Shaw, 1789)	F	F		LX
family Schendyliidae	1 species	2 species		
<i>Schendyla nemorensis</i> (C. L. Koch, 1837)	LX	LX	LX	LX
<i>Schendyla tyrolensis</i> (Meinert, 1870)		F		L
family Dignathodontidae	2 species	1 species		
<i>Henia brevis</i> (Silvestri, 1896)	F			
<i>Henia vesuviana</i> (Newport, 1844)	F	F		LX
family Geophilidae	9 species	9 species		
<i>Clinopodes flavidus</i> C. L. Koch, 1847		L		
<i>Geophilus alpinus</i> Meinert, 1870	LX	LX	LX	LX
<i>Geophilus carpophagus</i> Leach, 1815	F		X	
<i>Geophilus electricus</i> (Linnaeus, 1758)	LX	LX	LX	LX
<i>Geophilus flavus</i> (De Geer, 1778)	LX	LX	LX	LX
<i>Geophilus linearis</i> C. L. Koch, 1835	LX	LX	LX	X
<i>Geophilus oligopus</i> (Attems., 1895)				L
<i>Geophilus osquidatum</i> Brölemann, 1909				L
<i>Geophilus proximus</i> C. L. Koch, 1847		L		
<i>Geophilus pygmaeus</i> Latzel, 1880		L		
<i>Geophilus rhenanus</i> (Verhoeff, 1928)	F			
<i>Geophilus studeri</i> Rothenbühler, 1899	LX		LX	LX
<i>Geophilus truncorum</i> Bergsøe & Meinert, 1866	LX	F	X	X
<i>Gnathomerium wolffi</i> Ribaut, 1910			(L)	
<i>Pachymerium ferrugineum</i> (C. L. Koch, 1835)	LX	LX	L	L
family Linotaeniidae	2 species	2 species		
<i>Strigamia acuminata</i> (Leach, 1814)	LX	LX	LX	LX
<i>Strigamia crassipes</i> (C. L. Koch, 1835)	LX	LX	LX	LX
class Diplopoda	71 species	91 species		
order Polyxenida	1 species	1 species		
family Polyxenidae	1 species	1 species		
<i>Polyxenus lagurus</i> (Linnaeus, 1758)	LX	LX	L	L

taxon	Baden-Württemberg	Bavaria	adjacent German states	adjacent foreign countries
<i>Polyxenus germanicus</i> Verhoeff, 1941		(L)		
order Glomerida	8 species	11 species		
family Glomeridellidae		1 species		
<i>Glomeridella minima</i> (Latzel, 1884)		L		LX
family Glomeridae	8 species	10 species		
<i>Geoglomeris subterranea</i> Verhoeff, 1908	LX	L		L
<i>Glomeris connexa</i> C. L. Koch, 1847		LX		LX
<i>Glomeris helvetica</i> (Verhoeff, 1894)	L	LX		L
<i>Glomeris hexasticha</i> Brandt, 1833	LX	LX	LX	LX
<i>Glomeris intermedia</i> Latzel, 1884			LX	LX
<i>Glomeris malmivaga</i> (Verhoeff, 1912)	LX	L		
<i>Glomeris marginata</i> (Villers, 1789)	LX	LX	LX	LX
<i>Glomeris pustulata</i> Latreille, 1804	LX	LX	L	L
<i>Glomeris tetrasticha</i> Brandt, 1833	LX	LX	LX	LX
<i>Glomeris transalpina</i> C. L. Koch, 1836		L		LX
<i>Glomeris undulata</i> C. L. Koch, 1844	LX	LX	LX	LX
<i>Haploglomeris multistriata</i> (C. L. Koch, 1844)				LX
<i>Onychoglomeris tyrolensis</i> (Latzel, 1884)				L
family Doderiidae				
<i>Trachysphaera gibbula</i> (Latzel, 1884)				L
<i>Trachysphaera schmidtii</i> (Heller, 1858)				LX
order Polyzoniida	1 species	1 species		
family Polyzoniidae	1 species	1 species		
<i>Polyzonium germanicum</i> Brandt, 1831	F	F		LX
order Julida	32 species	41 species		
family Blaniulidae	5 species	5 species		
<i>Archiboreoiulus pallidus</i> (Brade-Birks, 1920)				L
<i>Blaniulus guttulatus</i> (Fabricius, 1798)	LX	LX	LX	LX
<i>Boreoiulus tenuis</i> (Bigler, 1913)	F	LX	L	L
<i>Proteroiulus fuscus</i> (Am Stein, 1857)	LX	LX	LX	L
<i>Choneiulus palmatus</i> (Nemec, 1895)	LX	L	L	L
<i>Nopoiulus kochii</i> (Gervais, 1847)	LX	L	L	
family Nemasomatidae	1 species	1 species		
<i>Nemasoma varicorne</i> C. L. Koch, 1847	LX	LX	LX	LX
family Julidae	26 species	35 species		
<i>Julus scandinavicus</i> Latzel, 1884	LX	LX	LX	LX
<i>Pachypodoiulus euryypus</i> (Attems, 1895)		LX		LX
<i>Hypoioiulus alpivagus</i> (Verhoeff, 1897)	LX	LX		LX
<i>Ophyiulus major</i> (Verhoeff, 1928)	F	LX		L
<i>Ophyiulus nigrofuscus</i> (Verhoeff, 1894)		LX		L
<i>Ophyiulus pilosus</i> (Newport, 1842)	F	LX		L
<i>Leptoiulus alemannicus</i> (Verhoeff, 1892)	(L)	LX		L

taxon	Baden- Württemberg	Bavaria	adjacent German states	adjacent foreign countries
<i>Leptoiulus belgicus</i> (Latzel, 1884)	LX	L	L	LX
<i>Leptoiulus bertkauii</i> (Verhoeff, 1896)	F		LX	LX
<i>Leptoiulus broelemanni</i> (Verhoeff, 1895)				L
<i>Leptoiulus helveticus</i> (Verhoeff, 1894)				L
<i>Leptoiulus marcomannius</i> Verhoeff, 1913		LX		L
<i>Leptoiulus montivagus</i> (Latzel, 1884)	L	L		L
<i>Leptoiulus noricus</i> Verhoeff, 1913		LX		LX
<i>Leptoiulus proximus</i> (Nemec, 1896)		LX	LX	
<i>Leptoiulus riparius</i> (Verhoeff, 1894)				L
<i>Leptoiulus saltuvagus</i> (Verhoeff, 1898)		LX		L
<i>Leptoiulus simplex</i> (Verhoeff, 1894)	LX	LX	L	LX
<i>Xestoiulus laeticollis</i> (Porat, 1889)	(L)			
<i>Kryphioiulus occultus</i> (C. L. Koch, 1847)	LX	L	L	
<i>Allajulus groedensis</i> (Attems, 1899)		LX		LX
<i>Allajulus nitidus</i> (Verhoeff, 1891)	LX	LX	LX	LX
<i>Enantiulus nanus</i> (Latzel, 1884)	LX	LX	LX	LX
<i>Cylindroiulus boleti</i> (C. L. Koch, 1847)		LX		L
<i>Cylindroiulus britannicus</i> (Verhoeff, 1891)	LX	F		
<i>Cylindroiulus caeruleocinctus</i> (Wood, 1864)	LX	LX	LX	LX
<i>Cylindroiulus fulviceps</i> (Latzel, 1884)		LX		L
<i>Cylindroiulus latestriatus</i> (Curtis, 1845)	L		L	
<i>Cylindroiulus luridus</i> (C. L. Koch, 1847)		LX		L
<i>Cylindroiulus meinerti</i> (Verhoeff, 1891)	F	LX		LX
<i>Cylindroiulus parisiorum</i> (Brölemann & Verhoeff, 1896)				X
<i>Cylindroiulus punctatus</i> (Leach, 1815)	LX	LX	LX	X
<i>Cylindroiulus salicivorus</i> (Verhoeff, 1908)	F			
<i>Cylindroiulus truncorum</i> (Silvestri, 1896)	F	LX		
<i>Cylindroiulus tirolensis</i> Verhoeff, 1901				L
<i>Cylindroiulus zinalensis</i> (Faes, 1902)		LX		LX
<i>Typhloiulus seewaldi</i> (Strasser, 1967)		L		L
<i>Unciger foetidus</i> (C. L. Koch, 1838)	LX	LX	LX	LX
<i>Brachyiulus lusitanus</i> (Verhoeff, 1898)	F			
<i>Brachyiulus pusillus</i> (Leach, 1815)	LX	LX	LX	LX
<i>Megaphyllum projectum</i> (Verhoeff, 1894)	LX	LX	LX	L
<i>Megaphyllum unilineatum</i> (C. L. Koch, 1838)	LX	LX	L	
<i>Tachypodoiulus niger</i> (Leach, 1815)	LX	LX	LX	LX
<i>Ommatoiulus rutilans</i> (C. L. Koch, 1847)	LX	L	L	L
<i>Ommatoiulus sabulosus</i> (Linnaeus, 1758)	LX	LX	LX	L
order Chordeumatida	18 species	24 species		
family Mastigophorophyllidae	2 species	3 species		
<i>Haploporatia eremita</i> (Verhoeff, 1909)		LX	L	LX
<i>Mastigona bosniense</i> (Verhoeff, 1897)	F	L	L	

taxon	Baden-Württemberg	Bavaria	adjacent German states	adjacent foreign countries
<i>Mastigona mutabile</i> (Latzel, 1884)	F	LX		X
family Neoatractosomatidae		1 species		
<i>Pseudocraspedosoma grypischium</i> (Rothenbühler, 1900)		LX		LX
<i>Trimerophorella rhaetica</i> (Rothenbühler, 1901)				L
family Haaseidae	2 species	3 species		
<i>Haasea flavescens</i> (Latzel, 1884)	LX	LX	L	LX
<i>Haasea fonticulora</i> (Verhoeff, 1910)				L
<i>Haasea germanica</i> (Verhoeff, 1901)		LX	L	LX
<i>Haasea norica</i> (Verhoeff, 1913)		LX		LX
<i>Xylophageuma vomrathi</i> Verhoeff, 1911	LX			
<i>Xylophageuma zschokkei</i> Bigler, 1912				LX
family Attemsidae		1 species		
<i>Dendromoneron oribates</i> (Latzel, 1884)		LX		LX
<i>Syngonopodium aceris</i> Verhoeff, 1913				LX
family Craspedosomatidae	7 species	10 species		
<i>Bergamosoma canestrinii</i> (Fedrizzi, 1878)		L		L
<i>Craspedosoma rawlinsii rawlinsii</i> (Leach, 1815)	LX	LX	LX	L
<i>Craspedosoma rawlinsii alemannicum</i> (Verhoeff, 1910)	LX	LX	LX	LX
<i>Craspedosoma rawlinsii alsaticum</i> (Verhoeff, 1910)	LX		LX	LX
<i>Craspedosoma rawlinsii X germanicum</i> (Verhoeff, 1910)	LX	LX		L
<i>Craspedosoma taurinorum</i> Silvestri, 1898		LX		L
<i>Helvetiosoma helveticum</i> (Verhoeff, 1900)				LX
<i>Pterygophorosoma alticolum</i> (Verhoeff, 1894)				L
<i>Pyrgocyphosoma titianum</i> (Verhoeff, 1910)	LX			
<i>Iulogona tirolensis</i> (Verhoeff, 1894)		LX		L
<i>Listrocheiritium cervinum</i> Verhoeff, 1925		LX		X
<i>Listrocheiritium noricum</i> Verhoeff, 1913				LX
<i>Rhymogona hessei</i> (Ravoux, 1935)				X
<i>Rhymogona montivaga alemannica</i> (Verhoeff, 1910)	LX	?LX		LX
<i>Rhymogona montivaga cervina</i> (Verhoeff, 1910)	LX			LX
<i>Rhymogona serrata</i> (Bigler, 1912)	LX			F
<i>Rhymogona verhoeffi</i> (Bigler, 1913)	LX			
<i>Rhymogona wehrana</i> (Verhoeff, 1910)	LX			
<i>Atractosoma meridionale</i> (Fanzago, 1876)		LX		L
<i>Dactylophorosoma nivisatelles</i> Verhoeff, 1900				L
<i>Ochogona caroli</i> (Rothenbühler, 1900)	LX	LX	L	LX
<i>Ochogona brentana</i> (Verhoeff, 1928)		F		L
<i>Ochogona regale</i> (Verhoeff, 1913)		LX		LX

taxon	Baden- Württemberg	Bavaria	adjacent German states	adjacent foreign countries
family Trachygonidae		1 species		
<i>Halleinosoma noricum</i> Verhoeff, 1913		F		LX
family Chordeumatidae	6 species	4 species		
<i>Chordeuma sylvestre</i> C. L. Koch, 1847	LX	LX	LX	LX
<i>Melogona gallica</i> (Latzel, 1884)	F		LX	LX
<i>Melogona scutellare</i> (Ribaut, 1913)				L
<i>Melogona voigti</i> (Verhoeff, 1899)	LX	LX	LX	LX
<i>Mycogona germanica</i> (Verhoeff, 1892)	LX	LX	LX	LX
<i>Orthochordeumella fulva</i> (Rothenbühler, 1899)	LX			LX
<i>Orthochordeumella pallida</i> (Rothenbühler, 1899)	F	LX		LX
family Brachychaeteumatidae	1 species	1 species		
<i>Brachychaeteuma bagnalli</i> (Verhoeff, 1911)				X
<i>Brachychaeteuma bradeae</i> (Brölemann & Brade-Birks, 1917)	F	LX		L
order Polydesmida	11 species	13 species		
family Paradoxosomatidae	1 species	2 species		
<i>Oxidus gracilis</i> (C. L. Koch, 1847)	LX	L		L
<i>Strongylosoma stigmatosum</i> (Eichwald, 1830)		LX	LX	L
<i>Stosatea italica</i> (Latzel, 1886)				L
family Polydesmidae	7 species	9 species		
<i>Polydesmus angustus</i> (Latzel, 1884)	LX	LX	LX	LX
<i>Polydesmus complanatus</i> (Linnaeus, 1761)	(L)	LX	L	LX
<i>Polydesmus denticulatus</i> C. L. Koch, 1847	LX	LX	LX	LX
<i>Polydesmus edentulus</i> C. L. Koch, 1847		L		LX
<i>Polydesmus germanicus</i> Verhoeff, 1896	L		L	
<i>Polydesmus helveticus</i> Verhoeff, 1894	LX	LX		LX
<i>Polydesmus inconstans</i> Latzel, 1884	LX	F	LX	L
<i>Polydesmus monticola</i> Latzel, 1884		LX		LX
<i>Polydesmus rothi</i> Manfredi, 1957				L
<i>Polydesmus superus</i> (Latzel, 1884)	LX	LX	LX	LX
<i>Polydesmus testaceus</i> C. L. Koch, 1847	LX	LX	L	LX
family Macrosternodesmidae	2 species	2 species		
<i>Macrosternodesmus palicola</i> Brölemann, 1908	F	LX	LX	
<i>Ophiodesmus albanus</i> (Latzel, 1895)	LX	F		
family Oniscodesmidae	1 species			
<i>Amphitomeus attemsi</i> (Schubart, 1934)	L			
class Pauropoda	20 species	7 species		
family Pauropodidae	18 species	6 species		
<i>Allopaupopus amaudruti</i> Remy, 1936				L
<i>Allopaupopus barcinonensis</i> Remy, 1933	L			
<i>Allopaupopus cuenoti</i> Remy, 1931	LX			L
<i>Allopaupopus danicus</i> (Hansen, 1902)	LX			L

taxon	Baden-Württemberg	Bavaria	adjacent German states	adjacent foreign countries
<i>Allopaauropus distinctus</i> Bagnall, 1936	LX			
<i>Allopaauropus gracilis</i> (Hansen, 1902)	LX			L
<i>Allopaauropus helophorus</i> Remy, 1936		L		
<i>Allopaauropus helveticus</i> (Hansen, 1902)	LX	F		L
<i>Allopaauropus hessei</i> Remy, 1935	F			L
<i>Allopaauropus humilis</i> Remy, 1945				L
<i>Allopaauropus meridianus</i> Remy, 1941	L			
<i>Allopaauropus multiplex</i> Remy, 1936	LX			L
<i>Allopaauropus pectinatus</i> (Hansen, 1902)				L
<i>Allopaauropus sabaudianus</i> Remy, 1935	L			L
<i>Allopaauropus tenellus</i> Scheller, 1971	F			L
<i>Allopaauropus viticolus</i> (Hüther, 1975)			L	
<i>Allopaauropus vulgaris</i> (Hansen, 1902)	LX	F		L
<i>Cauvetopauropus rhenanus</i> Hüther, 1971			L	
<i>Pauropus bagnalli</i> Remy, 1935	L			L
<i>Pauropus furcifer</i> Silvestri, 1902	L			L
<i>Pauropus huxleyi</i> Lubbock, 1867	LX	F		L
<i>Pauropus lanceolatus</i> Remy, 1956	L			L
<i>Stylopaauropus neglectus</i> Remy, 1962				L
<i>Stylopaauropus pedunculatus</i> (Lubbock, 1867)	LX	F	X	L
<i>Stylopaauropus pubescens</i> Hansen, 1902	LX	F		L
family Scleropauropodidae	1 species			
<i>Scleropauropus lyrifer</i> Remy, 1936	L			L
family Brachypauropodidae	1 species	1 species		
<i>Brachypauropus meyeri</i> Scheller, 1991				L
<i>Brachypauropus hamiger</i> Latzel, 1884	L	F		L
<i>Brachypauropus strebeli</i> Hüther, 1971			L	
family Eurypauropodidae				
<i>Gravieripus latzeli</i> (Cook, 1896)				L
class Symphyla	12 species	6 species		
family Scolopendrellidae	8 species	4 species		
<i>Geophilella pyrenaica</i> Ribaut, 1913	F			L
<i>Scolopendrella notacantha</i> Gervais, 1840	LX	F	L	L
<i>Scolopendrellopsis microcolpa</i> Muhr, 1881				L
<i>Symphyellopsis avernorum</i> Ribaut, 1931	F			
<i>Symphyellopsis subnuda</i> (Hansen, 1903)	LX	F		L
<i>Symphyella elongata</i> Scheller, 1952	LX			L
<i>Symphyella isabellae</i> (Grassi, 1886)	F	F		L
<i>Symphyella major</i> Scheller, 1961	L			L
<i>Symphyella vulgaris</i> (Hansen, 1903)	LX	F		L

taxon	Baden-Württemberg	Bavaria	adjacent German states	adjacent foreign countries
family ScutigereLLidae	4 species	2 species		
<i>Hanseniella nivea</i> (Scopoli, 1763)				L
<i>ScutigereLLa causeyae</i> Michelbacher, 1942	L			L
<i>ScutigereLLa immaculata</i> (Newport, 1845)	LX	LX		L
<i>ScutigereLLa nodicercus</i> Michelbacher, 1942	L	L		L
<i>ScutigereLLa palmonii</i> Michelbacher, 1942	L			L
<i>ScutigereLLa remyi</i> Juberthie-Jupeau, 1963				L

3. Results

49 chilopod, 91 diplopod, 7 pauropod and 6 symphylan species are currently known from Bavaria. For Baden-Wuerttemberg the numbers are: 45 chilopod, 71 diplopod, 20 pauropod and 12 symphylan species. This means an increase of 8 chilopod, 9 diplopod, 2 pauropod and 6 symphylan species compared with the treatment of Spelda (1991), 2 chilopod and 2 diplopod species compared with Spelda (1999c). Between 1988 and 2005 10 chilopod, 6 diplopod, 6 pauropod and 4 symphylan species, have been recorded from Bavaria, 9 chilopod, 15 diplopod, 2 pauropod and 3 symphylan species from Baden-Wuerttemberg by the author for the first time. Thereby 4 chilopod (*Harpolithobius anodus*, *Henia brevis*, *Lithobius glacialis*, *Schendyla tyrolensis*) and 3 diplopod (*Brachyiulus lusitanus*, *Cylindroiulus salicivorus*, *Halleinosoma noricum*) species have been recorded from Germany for the first time.

4. Notes on selected species

Chilopoda:

Harpolithobius anodus (Latzel 1880)

Unexpectedly *H. anodus* has been recently found in the Bavarian Alps (Rauschberg near Ruhpolding, 12.666°E, 47.700°N, 13.08. – 09.09.1998, 1 ♂; 14.06. – 11.07.1999, 1 ♀, both leg. E. Junker; Lercheck 5 km NE Berchtesgaden, 13.050°E, 47.657°N, 08.05.2005: 1 ♂), far away from its next known localities in southern Austria.

Lithobius austriacus Verhoeff, 1937

L. austriacus has been recorded from several localities in eastern Bavaria (records of Voigtländer (1994) and: 1 km N Schernfeld, 11.083°E, 48.916°N, 1995 – 1996, leg. K. Engel, 2 ♂♂; 2 km SE Gefrees, 11.750°E, 50.083°N, 01.12.1995, leg. T. Blick, 1 ♂; 1 km NW Schwaighausen, 12.029°E, 49.102°N, 09.09.2001, 1 ♂; Herrenchiemsee, 12.401°E, 47.862°N, 24.04.2004, 1 ♂; 1 km SW Grafenau, 13.366°E, 48.833°N, 01.09.1994, 2 ♀♀; 2 km N Erlau, 13.566°E, 48.566°N; 31.08.1994, 6 ♂♂, 2 ♀♀). This species and *L. aeruginosus* seem to be mutually exclusive.

Lithobius borealis Meinert, 1868

In southern Germany *L. borealis* has a prealpine-alpine distribution, including the Bavarian Forest. It is a trunk-inhabiting species (Spelda 1999a). In Baden-Wuerttemberg (first records) it occurs only in the prealpine part in the extreme southeast (1 km NW Neuravensburg, 9.750°E, 47.633°N, 01.11.1995, 1 ♂; 1 km W Ratzenried, 9.883°E, 47.716°N, 27.10.1993, 1 ♂)

Lithobius cyrtopus Latzel, 1880

According to Schubart (1967) no records of this species exist within the present German borders. Nevertheless the author found a sample, originating from K. W. Verhoeff, which contained two males in the collection of the LNK. The label indicates »Baden« as locality but it is supposed that this refers to Baden near Vienna.

Lithobius erythrocephalus C. L. Koch, 1847

L. erythrocephalus, *L. agilis* C. L. Koch, 1847 and the closely allied *L. schuleri* (Verhoeff, 1925), to which Zapparoli (1994) has given full specific status, provide a group of closely related species. Specimens of *L. erythrocephalus* found in Bavaria fit with the description of *L. schuleri* given by Eason (1982), but as *L. erythrocephalus* has been described from Bavaria, it seems more probable that this is the true name of this species. In southern Germany *L. erythrocephalus* is a woodland species and has been found by the author only in Bavaria. Records from Baden-Wuerttemberg (Armbruster 1992 ined.) might be the result of confusion with *L. agilis*, a species which, with its ecological valence (more open, warm biotopes), fits these records better.

Lithobius microps Meinert, 1868

This species has been found many times in the lower parts of Bavaria (e.g. 1 km SW Hammelburg, 9.883°E, 50.100°N, 26.04.1998, 1 ♀; 1 km S Marktstef, 10.133°E, 49.683°N, 22.05.1991, 1 ♀; Nürnberg-Moorbrunnenfeld, 11.150°E 49.400°N, 03.06.2000, leg. D. Heimbucher, 1 ♀) and Baden-Wuerttemberg (see Spelda 1999c). As no specific Bavarian records are known from literature, these are the first records for this country.

Lithobius mutabilis L. Koch, 1862

1935 *Lithobus geyeri* Verhoeff, Verh. naturw. Ver. Karlsruhe, **31**: 184 – 186, fig. 1. **syn. nov.**

L. geyeri was described by Verhoeff (1935) based upon two females from the Black Forest and the Swiss Kanton of Schaffhausen, north of the Rhine. The latter specimen from »Beringen am Randen« (8.566°E, 47.700°N) is present in the ZSM collection (A20030727) and has been checked. *L. geyeri* has been ignored by subsequent workers such as Eason (1982). The description and investigation of the type material have shown that this species is clearly *L. mutabilis*. As Koren (1992) has shown that *L. mutabilis*, as the Latin name »mutabilis« indicates, is highly variable, there is no reason for a subdivision into different species or subspecies.

Lithobius glacialis Verhoeff, 1937

1937 *Lithobius glacialis* Verhoeff, Arch. Naturgesch., N. F., **6** (2): 227 – 228, figs. 44 – 45.

L. glacialis is a recent discovery for Germany, but it is very likely that this species has been simply overlooked. In its plectrotaxy (term introduced by Crabill 1962) it is very similar to *L. mutabilis*, but missing the distinct fields of setae on the male's 13th tibia. Moreover *L. glacialis* has wrinkled tergites, while they are rather smooth in *L. mutabilis*. *L. glacialis* is a species of alpine pastures, where it occurs together with *L. latro* and *L. lucifugus*, while *L. mutabilis* is the dominant species of continental beech forests. *L. glacialis*, originally described from Tyrol (Darmstädter Hütte, 10.233°E, 47.050°N, ♀ micropreparation ZSM A20030728 checked), has been found in Bavaria (Nebelhorn, 10.333°E, 47.416°N, 13.08.1991, 1 ♂, 2 ♀♀; 15.09.1992, 1 ♀; Osterfelderkopf 6 km SW Garmisch, 11.051°E, 47.439°N, 22.08.2004, 2 ♂♂, 2 ♀♀, 1 juv. ♂; Kampenwand, 12.359°E, 47.756°N, 06.06.2004, 4 ♀♀), but also at the Großglockner Massif (Fuscher Lacke 8 km N Heiligenblut, 12.816°E, 47.100°N, 07.10.1995, 7 ♂♂, 5 ♀♀).

Lithobius lucifugus L. Koch, 1862

L. lucifugus is very common in the Alps, especially at high altitudes, but there are no records for Bavaria in literature. The species has been found in the Alps (Probst-Haus S Nebelhorn, 2000 m, 10.350°E, 47.400°N, 15.09.1992, 1 ♀; Kampenwand 4 km SE Aschau, 12.359°E, 47.756°N, 06.06.2004, 2 ♀♀; Untersberg 2 km SW Grödig, 10.10.1995, 13.000°E, 47.716°N, 1 ♂, 4 ♀♀) and the Bavarian Forest (Reschbachklause 3 km NNW Finsterau, 13.550°E, 48.950°N, 28.08.1994, 1 ♀). It has been found also in the prealpine part of Baden-Wuerttemberg (4 km N Leutkirch, 10.000°E, 47.866°N, 24.04.1994, 1 ♂). For both countries these are the first records.

Lithobius tricuspis Meinert, 1872

This species has been found many times in all parts of Bavaria, from low altitudes (e.g. 1.5 km N Erlau, 300 m, 13.566°E, 48.566°N, 31.08.1994, 1 ♀) up to the alpine level (Probst-Haus S Nebelhorn, 2000 m, 10.350°E, 47.400°N, 13.08.1991, 1 ♀). As no specific Bavarian records are known from literature, these are the first records for this country.

Lithobius valesiacus (Verhoeff, 1935) **stat. nov.**

1935 *Lithobius lusitanus valesiacus* Verhoeff, Verh. naturw. Ver. Karlsruhe, **31**: 196 – 197.

As shown by recent synonymisations (e.g. Zapparoli 1988) Verhoeff was not very firm in the association of *Lithobius* species. For that reason it seems better to base this well-defined Central European species upon a local type rather than associating it with the enigmatic old species *L. lusitanus*, although synonymy cannot be excluded totally. Subspecific treatments should be avoided in chilopods altogether, as we have hardly hints for geographic character transitions. The consequence of this is to give *valesiacus* specific status.

Together with *L. pelidnus* and *L. borealis*, *L. valesiacus* belongs to a group of species which mainly live on trees, as has been shown by trunk eclector traps (Spelda 1999a). Ignorance of their natural habitat suggested an unreal rarity as these species are only found in litter during their change between trees or from late autumn to early spring, when

they hibernate there. The numerous records from Baden-Wuerttemberg (e.g. 1.5 km SW Oberreichenbach, 8.650°E, 48.716°N, trunk elector traps, 14.04. – 11.12.1992, 5 ♂♂, 4 ♀♀; 5 km NW Langenau, 10.050°E, 48.516°N, pitfall traps, 21.12.1994 – 27.11.1995, 3 ♂♂, 3 ♀♀) represent the first records for this county.

Cryptops anomalans Newport, 1844

C. anomalans is a very recent addition to the chilopod fauna of south-western Germany. It was first recorded in 2000 at Stuttgart (Stuttgart-Obertürkheim, 9.266°E, 48.750°N, 25.05.2000) but has been found there several times subsequently (07.11.2000, 01.05. & 20.05. & 26.06.2001, 08.2003; a single adult specimen each time). As with other records of this species (Fründ 1989, Voigtländer 1988) it seems to be a recent introduction, limited to the warm urban conditions.

Cryptops hortensis Donovan, 1810

As *C. hortensis* has been mixed with *C. parisi* Brölemann, 1920 by previous authors, no specific records for Bavaria exist. The species is widespread in the lower parts of Baden-Wuerttemberg, but in Bavaria it is only known from two localities in the Main valley (3 km ESE Preunschen, 9.216°E, 49.566°N, 25.03.1989, 4 specimens; 1.5 km NW Reupelsdorf, 10.266°E, 49.816°N, 14.06.1991: 2 specimens) representing the first records for Bavaria.

Stigmatogaster subterraneus (Shaw, 1789)

S. subterraneus has been recorded from Baden-Wuerttemberg (1 km W Badenweiler, 7.650°E, 48.800°N, 14.10.1989, 1 ♂; 1 km NE Herrlingen, 9.900°E, 48.433°N, 21.09.1989, 1 ♀ (Spelda, 1991); 06.05.1997, 1 ♂, 1 ♀; 2 km NE Löwenstein, 9.383°E, 49.100°N, 22.04.1994, 1 ♂), Bavaria (1 km SW Hammelburg, 9.883°E, 50.100°N, 26.04.1998, 2 ♂♂, 1 ♀; Augsburg, 10.897°E, 48.373°N, 11.07.2004, 1 ♀; Munich-Obermenzing, 11.481°E, 48.164°N, 02.06.2004, leg. C. Pilz, 1 ♂, 1 ♀) and Switzerland (Rheinfall, 8.616°E, 47.666°N, 26.03.1994, 1 ♀), all of these being the first records. The species was found in both intra-urban (Munich, Augsburg) and in more or less natural biotopes (other records).

Schendyla nemorensis (C. L. Koch, 1837)

S. nemorensis is an eurytopic species and one of the most common geophilids in southern Germany (Spelda 1999c). In contrast to Britain (Barber in litt.) and north-western Germany (Verhoeff 1895), where males occur, the species reproduces parthenogenetically in southern Germany: among over 280 specimens, all with either 39 or 41 leg pairs (Spelda 1999c), not a single male has been found.

Schendyla tyrolensis (Meinert, 1870) **comb. nov.**

1870 *Geophilus tyrolensis* Meinert, Naturhist. Tidss., ser. 3, 7: 73 – 74.

During the investigations on Central European geophilids the types of *Geophilus tyrolensis* from the ZMUC were also checked. It has been shown that they clearly represent the species generally known as *Schendyla montana* (Attems, 1895). Therefore the latter name has to be replaced by the older one. First records for Germany and Bavaria: Forchenbachtal 3 km SW Flintsbach/Inn, 12.093°E, 47.723°N, 08.11.2004, 1 ♀; Falkenstein 1 km SSE Flintsbach/Inn, 12.128°E, 47.717°N, 08.11.2004, 1 ♂.

Henia brevis (Silvestri, 1898)

H. brevis is now known from three localities in Baden-Wuerttemberg (1 km NE Markgröningen, 9.083°E, 48.900°N, 24.03.1990, 1 ♂, 1 ♀; Esslingen-St. Bernhard, 9.316°E, 48.750°N, 19.09.1988, 1 ♀; 2 km NW Crailsheim, 10.050°E, 49.150°N, 19.04.1997, 2 ♂♂, 1 juv. ♀), which are all outside suburban areas but situated in the former wine growing area. The species occurred there in shrubberies (Spelda 1999c), while it was found by the author mainly in woodland in its natural area in the southern Alps (Italy, Prov. Trento, several localities). The species is very likely an old introduction.

Henia vesuviana (Newport, 1844)

It is not clear whether *H. vesuviana* is a natural inhabitant of south-western Germany. On one hand there is no gap in the main area, on the other hand the species has a high tendency to colonise new biotopes, as shown by Crabill (1955). *H. vesuviana* seem to need stony soil, as it is missing in the flat parts of the upper Rhine valley, but it is found at the borders of the Black Forest (Karsruhe-Durlach, 8.478°E, 48.986°N, 13.06.1998, leg. L. Beck, 1 ♀) and the Vosges Mountains (Rouffach, 7.283°E, 48.950°N, Verhoeff 1912a). The species has recently been discovered in Munich (Munich-Obermenzing, 11.481°E, 48.164°N, 02.06.2004, leg. C. Pilz, 1 ♂, 3 ♀, first record for Bavaria), where it is obviously introduced.

Geophilus alpinus Meinert, 1870

1870 *Geophilus alpinus* Meinert, Naturhist. Tidss., ser. 3, 7: 76 – 78.

1928 *Geophilus glacialis* Verhoeff, Mitt. Zool. Mus. Berlin, 14: 241 – 242, figs. 1, 5. **syn. nov.**

1940 *Geophilus glocknerensis* Verhoeff, Abh. Preuß. Akad. Wiss., math.-naturwiss. Kl., 1940 (5): 4, pl. 1, figs. 6 – 8, pl. 2, fig. 9. **syn. nov.**

1940 *Geophilus glocknerensis moellensis* Verhoeff, Abh. Preuß. Akad. Wiss., math.-naturwiss. Kl., 1940 (5): 5, pl. 2, fig. 11. **syn. nov.**

1929 *Geophilus insculptus*, – Attems, Das Tierreich, 52: 356, nec Attems, Das Tierreich, 52: 164, nec *Geophilus insculptus* Attems, SB Akad. Wien, math.-naturw. Kl., 104 I: 47 – 49, pl. 1, figs. 9, 12.

Until the eventual type check by Christian (1996) the identity of the species *G. insculptus* caused a dispute among chilopod taxonomists (Minelli 1978, Koren 1986, Jeekel 1999). To clear up the identity of the Central European *Geophilus* species with a reduced maxillary claw, the type specimen of *G. alpinus* described by Meinert (1870) and still represented in the collection of the ZMUC have been checked. It has been shown that *G. alpinus* perfectly fits with the description of the species presently known as *G. insculptus* (Attems 1929) but contradicting the original description of Attems (1895). As *G. alpinus* is the oldest available name, *G. insculptus* and all of its former synonyms have to be kept under *G. alpinus*, a name that might guarantee now a stabile nomenclature.

Geophilus carpophagus Leach, 1815

G. carpophagus is a rare species in southern Germany (Spelda 1999c). It has not yet been recorded for Bavaria and only two suburban records exist from Baden-Wuerttemberg (Gschwend-Brandhof, 9.700°E, 48.733°N, 24.12.1978 – 27.06.1995, leg. P. & B. Bühler, several ♂♂ (all 53 leg pairs) and ♀♀ (all 55 or 57 leg pairs) inside a house (Spelda 1991); Esslingen,

9.300°N, 48.733°N, 01.10.1992, 1 ♂, 51 leg pairs, 1 ♀, 55 leg pairs, on the trunk of a sycamore tree) which represent the first records for this country. The material has been checked against *G. easoni* (Arthur et al. 2001). In both, morphological and ecological characters the investigated specimens fit with true *G. carpophagus* (Arthur et al. 2001, 2002). This thermophilous species, which is quite common in the Mediterranean region, is most probably not a natural inhabitant of southern Germany.

Geophilus rhenanus (Verhoeff, 1895) **stat. nov.**

1895 *Geophilus proximus rhenanus* Verhoeff, Arch. Naturgesch., **61** (1): 349, fig. 1a.

1928 *Geophilus insculptus rhenanus*, – Verhoeff, Mitt. Zool. Mus. Berlin, **14**: 232.

As shown from many specimens examined, *G. alpinus* varies only to a small extent in the number of leg-pairs (43 – 49 in ♂♂, 43 – 53 in ♀♀). In the Rhine valley (first record for Baden-Wuerttemberg: 2 km SSW Kehl, 7.800°E, 48.550°N, 17.10.1997, 1 ♀), a form with distinctly more leg-pairs occurs. Both the type specimen from Oberkassel and the recent record show 61 leg pairs. As there is a large gap between the numbers of leg-pairs of the two forms, the many-legged form is considered to belong to a sibling species, which has been already described as subspecies of *proximus* and which is now upgraded to specific level.

Geophilus proximus C. L. Koch, 1847

G. proximus has been originally described from Bavaria (Regensburg), but no recent material from this locality has been available for examination. The species known under the name of *G. proximus* from northern Germany and adjacent Scandinavia (see Jeekel 1999) seems to be distinct from the near allied *G. studeri* Rothenbühler, 1899, which was redescribed by Spelda (1991), but until the rediscovery of *G. proximus* at its type locality its identity remains enigmatic.

Geophilus truncorum Bergsoe & Meinert, 1866

First record for Bavaria (Laubenthal 8 km SE Weissenburg, 11.051°E, 48.978°N, 25.06.2005, 1 juv., 35 leg pairs).

Gnathomerium wolffi Ribaut, 1910

G. wolffi has never been re-collected after its original description. As already stated by Ribaut (1910) himself his record is most probably a case of label confusion, as a typical North American centipede, *Otocryptops sexspinosus* (Say, 1821) has been found under the same label and the nearest relatives of *G. wolffi* live in North America. For that reason it should be removed from the list of German centipedes.

Pachymerium ferrugineum (C. L. Koch, 1835)

In southern Germany *P. ferrugineum* seems to be restricted to extreme biotopes like bogs and dry meadows. Popp (1965) recorded a constant occurrence in Bavarian bogs, but did not recognise its absence in other biotopes. Therefore he erroneously believed it to be an eurytopic species. In fact *P. ferrugineum* seems to be handicapped by competitors. If such are missing it can populate other biotopes, as shown by its wide distribution in Scandinavia (Palmén & Rantala 1954).

Strigamia crassipes (C. L. Koch, 1835)

In southern Germany *S. crassipes* can only formally be distinguished from *S. transsilvanica* (Verhoeff, 1928) by the presence or absence of a darker chitinised median stripe on some of the posterior sternites. All other characters are exactly the same, as can be seen also in Koren's (1986) drawings. It has been shown that the expression of this median stripe varies gradually between very distinct to nearly missing. The chitinised stripe tends to disappear in microscope preparations. Additionally there are no ecological differences between both forms. The consequence is, that *S. transsilvanica* in southern Germany is no more than a variety of *S. crassipes*. As the whole syntype series of *S. transsilvanica* has not yet been checked and no lectotype designation has been made, the possibility cannot be excluded that the specimens from Romania belong to a distinct species. Therefore the two species are not synonymised, but all local records of *S. transsilvanica* are referred to *S. crassipes* and the former species is removed from the list of chilopods of southern Germany (Spelda 1991).

Diplopoda:

Polyxenus germanicus Verhoeff, 1941

1941 *Polyxenus germanicus* Verhoeff, Zool. Anz., **133** (11 – 12): 263 – 264, fig. 2.

This enigmatic species has never been accepted by specialists of Polyxenida, but also not formally synonymised. A critical revision of the types is urgently needed. The species is therefore excluded from the number of species.

Geoglomeris subterranea Verhoeff, 1908

1908 *Geoglomeris subterranea* Verhoeff, Zool. Anz., **33** (12): 415.

1913 *Stygioglomeris crinita* Brölemann, Arch. zool. expér. gén., **52**: 421 – 422, pl. 19, fig. 96.

1915 *Geoglomeris jurassica* Verhoeff, Zool. Anz., **46** (1-2): 21 – 23, figs. 1 – 5, 8 – 9.

As already shown by Gruber's work on syntypes of *G. subterranea* (Gruber 1985), there is no difference between this species and *G. jurassica*. In fact all investigated specimens from classical localities of both nominal species (Schwäbisch Hall, 9.733°E, 49.100°N, 18.05.1997, 8 ♀♀; 2 km ESE Neuffen, 9.400°E, 48.550°N, 28.06.1997, 8 ♀♀) match with the description of *G. jurassica*, which was already synonymised with *S. crinita*, the reason why Blower (1985) recorded this species as *S. crinita*. The riddle might be resolved by the fact that Verhoeff made his descriptions mainly on specimens mounted on micro-slides which have a somewhat different appearance than in alcohol material: the differences between the two nominal species are in fact only preparation-specific artefacts.

The present records (see above, and: 2 km NE Schopfloch, 9.550°E 48.550°N, 27.06.1998, 1 ♀; 1 km SE Talheim, 8.650°E, 47.800°N, 19.05.1997, 3 ♀♀) show that *G. subterranea* occurs in loose limestone soil types, especially the so-called Ranker, on steep wooded slopes. *G. subterranea* is difficult to find at all. In the soil samples from the two classical localities no specimens have been found during a manual check, but several have been extracted using a Berlese apparatus. It is remarkable that *G. subterranea* has been found at its classical localities at the attempt but was missing in the large numbers of soil samples checked at the LNK, mainly from the flat long-term sample areas of the LFU BW. The pattern of few, widely dispersed records is the result of both difficult recording and

ecological specialisation. *G. subterranea* is a parthenogenetic species of which males have never been found (Schubart 1934, Blower 1985).

Glomeris connexa C. L. Koch, 1847

Hoess & Scholl (2001) have shown that *G. connexa* is the correct name for the species formerly known as *G. guttata* auct. or *G. verhoeffi* Brölemann, 1924. This nomenclatorial change might cause confusion within faunistic lists.

Glomeris helvetica (Verhoeff, 1894)

While *G. helvetica* is quite common in Switzerland, reaching to southern Baden, there is an isolated population in lower Franconia, of which several records exist (Verhoeff 1937a). The presence of the species has been confirmed there recently (3 km NW Veitshöchheim, 9.850°E 49.850°N, 26.04.1998, 1 ♂). As already shown by Verhoeff (1937a) the specimens from the Main Valley look somewhat different than typical specimen of *G. helvetica* from Switzerland and, like *G. malmivaga*, they might belong to a different taxon. It is quite probable that both *G. malmivaga* and the Franconian *G. helvetica* have been isolated simultaneously during the last glacial period, but that *G. malmivaga* has simply differentiated its colour pattern more strikingly. Genetic studies might clarify their status.

Glomeris malmivaga (Verhoeff, 1912) **stat. nov.**

1912 *Glomeris ornata* var. *malmivaga* Verhoeff, SB Ges. naturf. Fr. Berlin, **1912** (8): 417 – 418.

G. malmivaga was originally described as a variety of *G. ornata*. In this paper Verhoeff (1912b) also showed the close affinity between *G. ornata* and *G. helvetica*. Schubart (1934) upgraded the taxon to subspecific level. Hoess (2000) simply dropped the subspecific name without having compared this taxon genetically with both *G. ornata* and *G. helvetica*. The geographical distribution implies that *G. malmivaga* is very likely a closer relative of *G. helvetica* than of the southeast alpine *G. ornata*. As it is an isolate and also distinctive, full specific level is given to this taxon. In the Swabian Alp *G. malmivaga* inhabits only a small area in the east, but occurs quite commonly there (new records: 1 km E Gruibingen, 9.650°E, 48.583°N, 25.04.1993, 1 ♂; NW Hütten, 9.633°E, 48.366°N, 21.04.1997, 4 ♂, 10 ♀; 13.07.1997, 6 ♂, 10 ♀; 28.10.1997, 3 ♀; 1 km NE Reichenstein, 9.566°E, 48.250°N, 25.06.1988, 1 ♂). Further studies might show if the area in the Franconian Alp is also sharply delimited.

Glomeris tetrasticha Brandt, 1833

This species was for a long time wrongly known under the name of *G. connexa* C. L. Koch, 1847. This has been corrected by Hoess & Scholl (2001).

Polyzonium germanicum (Brandt, 1831)

For a long time *P. germanicum* was regarded as a classical example of an east-west disjunction (Kime 1990). Although the species is quite common east of the Elbe river, and as well in the Austrian Alps from Salzburg eastwards (Kurnik & Thaler 1989), no records were known from the western part of Germany. Much more to the west the species re-occurs in western France and southern England. For a long time the easternmost record of this western area has been a record from the Vosges Mountains (Dep. Haute-Saône, Port-sur-Saône, 6.043°E, 47.688°N, 1 juv., leg. Vandel) in the collection of the MNHNP

(J.-P. Mauriès, in litt.). Recent records connect these two areas now, as the species has been recorded from three localities in Baden-Wuerttemberg (2 km SSW Schwetzingen, 8.550°E, 49.366°N, 19.03 – 12.09.1994, leg. LFU BW, 6 ♀♀; 3 km W Weiher, 8.583°E, 49.183°N, 31.03. – 15.09.1994, leg. LFU BW, 1 ♂, 4 ♀♀; 01.09.1997 – 22.04.1998, leg. L. Beck, 1 ♂, 6 ♀♀; 1 km SSE Schöllbronn, 8.428°E, 48.883°N, 01.05. – 31.08.2000, leg. H. Rausch, 1 ♀) and one in Bavaria (Nürnberg-Moorbrunnenfeld, 11.150°E 49.400°N, 03.06.2000, leg. D. Heimbucher, 6 ♀♀). Except for a single female collected by the author at Weiher (22.04.1998), all records have been made via pitfall traps. It seems that the occurrence of *P. germanicum* is very localised in the western part of its area.

Boreoiulus tenuis (Bigler, 1913)

B. tenuis is a rare species in southern Germany. Only two records have been made during the author's investigations, one directly at the border between Baden-Wuerttemberg and Hesse (2 km S Gammelsbach, 8.966°E, 49.500°N, 01.04.1997, 1 ♂, 1 ♀) the other in Bavaria (SE Augsburg, 10.909°E, 48.344°N, 02.05.2004, 1 ♂, 1 ♀).

Ophiulus pilosus (Newport, 1842) and *O. major* (Verhoeff, 1928)

The species *O. pilosus* and *O. major* are very close one another and have often not been distinguished (e.g. in Spelda 1991, 1999c). They differ mainly in size (Schubart 1934). Own investigations have shown, that *O. major* seems to be restricted to the alpine and prealpine region, while *O. pilosus* is more widely distributed and often occurs in secondary (anthropogenic) biotopes. Both species are recorded for Baden-Wuerttemberg for the first time (e.g. *O. pilosus*: Sindelfingen, 9.000°E, 48.700°N, 04.05.1993, leg. G. Mann, 1 ♂; Burgstall an der Murr, 9.366°E, 48.916°N, 08.04.1994, 5 ♂♂, 1 ♀; *O. major*: SE Schweinhausen, 9.800°E, 48.033°N, 28.03. – 12.04.1995, pitfall traps, leg. LFU BW, 1 ♂).

Leptoiulus bertkaui (Verhoeff, 1896)

Recent investigations have shown that *L. bertkaui* occurs in Baden-Wuerttemberg too (2 km SSW Griebheim, 7.566°E, 47.850°N, 01.04. – 02.09.1993, leg. LFU BW, 1 ♂, 1 juv. ♀; 1 km SE Hertingen, 7.600°E, 47.716°N, 30.03. – 22.09.1994, leg. LFU BW, 1 ♂, 1 ♀; 1 km NW Münzesheim, 8.700°E, 49.116°N, 26.05. – 07.11.1990, leg. H. Rausch, 1 ♂; 1 km SW Schützingen, 8.883°E, 48.983°N, 06.04. – 07.09.1993, leg. LFU BW, 1 ♂, all in pitfall traps). Like *L. montivagus* this species is difficult to find. Pitfall trapping is the best way of recording. As recent records from Switzerland (Pedroli-Christen 1993) and Hesse (Voigtländer & Hauser 1998) show, the species is more widely distributed than formerly believed.

Leptoiulus simplex (Verhoeff, 1894)

1892 *Julus alemannicus* Verhoeff, Zool. Anz., **15** (403): 377 – 379. (pro parte)

1894 *Iulus (Leptoiulus) alemannicus* var. *simplex* Verhoeff, Verh. zool.-bot. Ges. Wien, **44**: 25, pl. 2, fig. 5.

1908 *Julus (Leptoiulus) alemannicus glacialis* Verhoeff, 1908, Arch. Naturgesch. **73** (1): 452. **Syn. nov.**

1910 *Leptoiulus simplex glacialis* – Verhoeff, Jh. Ges. Naturkde. Württemberg, **66**: 357.

The *L. simplex*-complex provides a nomenclatorial problem, as the species *Julus alemannicus* was originally described from specimens from Heidelberg (Verhoeff 1892). The type locality was only given in a footnote which Verhoeff (1892) might have added during the correction of the proof of the original paper and there he indicated that he had found this species in Switzerland too. Later Verhoeff (1894) separated the specimens from the Neckar valley as var. *simplex*. Fourteen years later Verhoeff (1908) provided a key, where he separated several subspecies from *L. alemannicus*, including *L. a. simplex* for specimens from Slovenia and *L. a. glacialis* for specimens from Switzerland. In respect of the taxon *simplex* Verhoeff (1908) wrote that the specimens from southern Germany required further examination. This was done two years later. Verhoeff (1910) noticed the illegitimate use of the name *simplex* for the specimen from Slovenia, changed its name to *Leptoiulus alemannicus austriacus* and upgraded the taxon *simplex* to specific status. He subordinated three subspecies (*L. s. langkofelanus*, *L. s. dolomiticus* and *L. s. glacialis*) which he had already described in Verhoeff (1908) under *L. alemannicus*, but inconsistent with the Rules of Zoological Nomenclature he did not state a typical subspecies *L. s. simplex*. As the taxa *simplex* and *glacialis* are based upon the same specimens (the same populations, Verhoeff 1910), *L. simplex glacialis* is a superfluous name, which has to be replaced by *L. simplex simplex*. The nominal subspecies require further study of their status. It is quite probable that their names might be reduced to *L. simplex*. In respect of *L. alemannicus*, it might be a good idea to interpret Verhoeff's original description generously and to select a specimen from Switzerland as lectotype, which fixes the present concept of this species.

The *Leptoiulus*-taxa *simplex*, *marcomannius* Verhoeff, 1913 and *noricus* Verhoeff, 1913 represent a close complex of forms, which occur allo- or parapatric. They are also geographically separate from *L. proximus*, a species which is only a distant relative. Further investigations might show if *L. marcomannius* and *L. noricus* are only subspecies of *L. simplex*, but without the proof of a gradual transition it is better to keep them as independent species.

Leptoiulus alemannicus (Verhoeff, 1892) and *Xestoiulus laeticollis* (Porat, 1889)

A single record for Baden-Wuerttemberg has been published for *L. alemannicus* and *X. laeticollis* respectively (Hoffmann 1980, Zier 1985). Both records, well away from the regular distribution, are most probably misidentifications. The two species have been excluded from the list of millipedes of Baden-Wuerttemberg.

Cylindroiulus britannicus (Attems, 1900)

First records for Bavaria (SW Obermaiselstein, 10.216°E, 47.433°N, 15.10.1991, 2 ♂♂, 1 ♀; Munich, Innenstadt, near Zoological Institute, 11.566°E, 48.149°N, 14.08.2003, leg. R. Melzer, 2 ♂♂, 2 ♀♀, 5 juv. ♂♂)

Cylindroiulus fulviceps (Attems, 1900)

C. fulviceps is restricted to the central parts of the Bavarian Alps (Schubart 1934). It shows a similar distribution pattern to *Bergamosoma canestrinii* or *Ochogona brentana* (see below), but is more widely distributed in the Bavarian Alps.

Cylindroiulus luridus (C. L. Koch, 1847) and *C. boleti* (C. L. Koch, 1847)

Both *C. luridus* (2 km N Erlau, 13.566°E, 48.566°N, 31.08.1994, 4 ♂♂, 3 ♀♀, 1 juv. ♂) and *C. boleti* (1 km E Mittling, 12.800°E, 48.233°N, 30.06.1990, 4 ♂♂) are species of the river basin of the Danube and occur only in the extreme east of Bavaria.

Cylindroiulus meinerti (Verhoeff, 1891)

A species with an alpine-prealpine distribution pattern (Spelda 1999c), which reaches the Danube valley (1 km S Donaustetten, 9.933°E, 48.316°N, 30.03. – 21.08.1993, leg. LFU BW, 1 ♂) but does not go beyond.

Cylindroiulus parisiorum (Brölemann & Verhoeff, 1896)

C. parisiorum has only been recorded once in northern Switzerland (Arenenberg Palace 1 km ESE Berlingen, 9.033°E, 47.666°N, 29.10.1994, 1 ♀), not far from the German border.

Cylindroiulus salicivorus (Verhoeff, 1908)

C. salicivorus, a species originally described from Lombardy (Laveno, Lago Maggiore) but now also known from Great Britain (Read et al. 2002) has recently been recorded in Germany for the first time (Karlsruhe Palace, 8.414°E, 49.015 °N, 08.11.2000, 1 ♂, 1 ♀). The record has been made in a park which is directly adjacent to a forest. It is very likely that this species is introduced, but as *C. salicivorus* is a subterranean species with reduced (but not absent) eyes, it might have been simply overlooked in several places.

Typhloiulus seewaldi (Strasser, 1967)

Originally described from Bavaria (Hollerloch, a cave of the Untersberg, 13.006°E, 47.717°N) this species has now been recorded from two other caves in Austria by Fritsch (1998) who synonymised *Alpityphlus* with *Typhloiulus*.

Brachyiulus lusitanus (Verhoeff, 1898)

B. lusitanus has recently been recorded in the Upper Rhine Valley, another first record for Germany (Karlsruhe-Knielingen, 8.347°E, 49.031°N, 18.11.2002, leg. E. Rückert, 1 ♂, 1 ♀).

Megaphyllum projectum Verhoeff, 1894

The delimitation of the *Megaphyllum* taxa *projectum*, *austriacum* Latzel, 1884, *dioritanum* Verhoeff, 1907, *kochi* Verhoeff, 1907 and *silvaticum* Verhoeff, 1898 require a thorough revision. At the present time the records from southern Germany are kept under the name *M. projectum*.

Mastigona bosniense (Verhoeff, 1897)

In contrast to *M. mutabile*, *M. bosniense* is a species of more or less open landscape. In southern Germany it occurs often in secondary biotopes, such as gravel pits or quarries. It has been found several times in Baden-Wuerttemberg in pitfall traps and soil samples (SE Sindeldorf, 9.616°E, 49.333°N, 29.08.1995 – 26.09.1996, 6 ♂♂, 1 ♀; 2 km E Schelklingen, 9.750°E, 48.366°N, 10.11.1992 – 30.03.1994, 33 ♀♀, 17 juv.; 1 km E Gerhausen, 9.800°E, 48.383°N, 11.06.1992 – 20.10.1993, 25 ♂♂, 44 ♀♀, 1 juv.). This moves the distributional border another 100 kilometres to the west.

Mastigona mutabile (Latzel, 1884)

M. mutabile shows an alpine distribution pattern but occurs in the Bavarian Forest as well (Schubart 1934). It is one of the most common chordeumatids in the Bavarian Alps but reaches Baden-Wuerttemberg only in its pre-alpine part in the extreme southeast (E Rohrdorf, 10.083°E, 47.716°N, 27.08. – 26.10.1990, 1 ♂, 2 ♀♀, pitfall traps) (Spelda 1991).

Haasea flavescens (Latzel, 1884)

1901 *Orobainosoma pinivagum* Verhoeff, Jh. Ver. vaterl. Naturkde. Württemberg, **57**: 99 – 101, pl. 1, fig. 11, pl. 2, figs. 12 – 14. **Syn. nov.**

H. flavescens is very common in the Bavarian Forest, where it occurs together with *H. germanica* Verhoeff, 1901 syntopically. Mature specimens of *H. flavescens* with 28 or 29 pleurotergites have been found several times in the large series checked. Such specimens, formerly referred to »*Orobainosoma pinivagum*«, show in their gonopods only the same variation found within *H. flavescens* specimens with the typical number of segments (30). A hint to the intraspecific variation in segment number was already given by Attems (1895), who noticed juveniles with 27 segments as outstanding feature. As a consequence *O. pinivagum* has to be synonymised under *H. flavescens*.

Rhymogona Cook, 1896

Rhymogona hessei (Ravoux, 1935) **stat. nov.**

Rhymogona serrata (Bigler, 1912) **stat. rev.**

Rhymogona verhoeffi (Bigler, 1913) **stat. rev.**

Rhymogona wehrana (Verhoeff, 1910) **stat. rev.**

Recent investigations, based on discriminant analysis of morphological characters of measured gonopod parts (Spelda 1999c) have shown that, in contrast to the treatment of Pedrolí-Christen & Scholl (1996) several taxa of the genus *Rhymogona* have to be treated as valid species. In a diagram (Fig. 1), showing the two main discriminant functions, the character clouds of the taxa *verhoeffi*, *serrata* and *wehrana* are clearly separate, the latter two even quite distinct. At one locality *serrata* and *wehrana* occurred syntopically (1 km W Karsau, 7.783°E, 47.583°N, 13.10.1996) but no hybridisation was found. This confirms the specific status of the two taxa.

Between the taxa *montivaga* Verhoeff, 1894 and *hessei* a distinction could only be made in anterior view of their gonopods, and therefore no separation was possible in the discriminant analysis based on the gonopodial characters taken in lateral view. Nevertheless, no overlap between the morphological characters analysed in both taxa has been found. As the subspecies concept is stronger than the species concept (Mayr 1967), the taxon *hessei* has to be kept as separate species until the contrary has been proved. Only the taxa *alemannica* (Verhoeff, 1910) and *cervina* (Verhoeff, 1910) remain as subspecies under *R. montivaga*. The genus *Rhymogona* also occurs in Bavaria (Verhoeff 1916), but only females have been found there up to now. Thus no assignment to a described taxon is possible. Most probably the Bavarian specimens belong to ssp. *alemannicum*. *R. serrata* has been recorded for Switzerland for the first time (S Bettingen, 7.650°E, 47.566°N, 28.10.1994, 1 ♀) only a few metres from the German border.

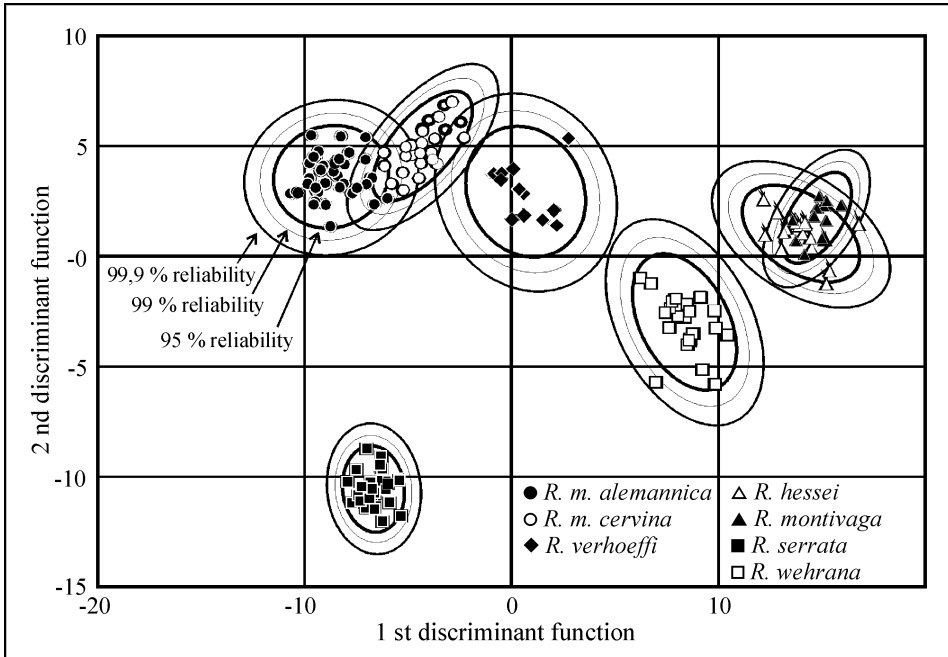


Fig. 1 Values of the two main discriminant functions for seven taxa in the genus *Rhymogona* Cook, 1896. Discriminant functions are aggregations/summarisations of morphometric characters that allow optimal distinction of given groups. They react like single characters such as length or width.

Ochogona brentana (Verhoeff, 1928)

In the surroundings of Garmisch-Partenkirchen several myriapod species with southern to central alpine distribution have their only occurrence in Germany (e.g. *Bergamosoma canestrinii*, *Eupolybothrus grossipes*). With *O. brentana*, which has also been discovered in Tyrol (Thaler & Meyer 1974), another element with this distribution pattern has been recorded for Germany for the first time (SW Hammersbach, 11.044°E 47.458°N, 16.10.2003, leg. R. Melzer, J. Spelda & M. Unsöld, 1 ♂; Alpspitze, Bernadein, 2050 m, 11.059°E, 47.428°N, 16.10.1997, leg. J. Voith (LFU BY), 1 ♂).

Halleinosoma noricum Verhoeff, 1913

This species has been described from Austria, only a few metres from the German border. Its occurrence in Germany has now been stated (Lercheck 5 km NE Berchtesgaden, 13.050°E, 47.657°N, 08.05.2005: 1 ♀).

Melogona gallica (Latzel, 1884)

As recently shown (Spelda 1999c) *M. gallica* does not stop its geographic range at the Rhine valley but occurs distinctly more eastward to the margins of the Black Forest (new records: N Karlsruhe-Grötzingen, 8.500°E, 49.000°N, 07.04.1994, 1 ♀; 2 km SSW Schwetzingen, 8.550°E, 49.366°N, 19.03. – 12.09.1994, leg. LFU BW, pitfall traps, 4 ♂♂, 1 ♀; 2 km NNW Kappelrodeck, 8.100°E, 48.600°N, 17.10.1997, 1 ♂). It also occurs in central Hesse (Spelda 2000) and Luxemburg (Spelda 2001).

Orthochordeumella pallida (Rothenbühler, 1899)

Recent records (Baden-Wuerttemberg: SW Ziegelhausen, 8.733°E, 49.416°N, 23.10.1997, 2 ♂♂; Bavaria: W Eichenbühl, 9.316°E, 49.700°N, 22.10.1997, 1 ♀) and references (Fründ & Ruszowski 1989, Spelda 2001) show that *O. pallida* is much more widely distributed than formerly known.

Brachychaeteuma bagnalli (Verhoeff, 1911)

B. bagnalli has been found in Thuringia for the first time (Goetzhöhle W Meinigen, 10.408°E, 50.565°N, 328 m, 04.10.1996, leg. S. Zaenker, 1 ♂). The species very likely occurs in Bavaria too, as the locality is only a few kilometres away from the Bavarian border.

Polydesmus complanatus (Linnaeus, 1761)

P. complanatus occurs in eastern Bavaria. This species and *P. angustus* nearly exclude each other geographically. Only at one site have they been found syntopically (2 km SE Gefrees, 11.750°E, 50.083°N, 01.12.1995, leg. T. Blick). The records from Baden-Wuerttemberg (Dettner 1985, Dobat 1975) are clearly misidentifications (see Spelda 1993).

Polydesmus inconstans Latzel, 1884

P. inconstans has recently recorded from Bavaria (2 km NE Günching, 11.600°E, 49.266°N, 20.03.1990, 1 ♂) and Baden-Wuerttemberg (NE Oberlaudenbach, 8.683°E, 49.616°N, 01.05.1994, 1 ♀), the former representing the first record for Bavaria.

Macrosternodesmus palicola Brölemann, 1905

Careful measurement has shown that the record from 1 km E of Dietenheim (10.083°E, 48.200°N) stated as first record for Baden-Wuerttemberg in Spelda (1991) belongs in fact to Bavaria. In addition the species has been recorded both in Baden-Wuerttemberg (E Laudenbach, 8.650°E, 49.600°N, 01.05.1994, 2 ♂♂, 5 ♀♀) and adjacent Rhineland-Palatinate (1 km NNW Neuhofen, 8.416°E, 49.433°N, 24.04.1997, 5 ♂♂, 4 ♀♀).

Ophiodesmus albonanus (Latzel, 1895)

First record for Bavaria (3 km NW Veitshöchheim, 9.850°E, 49.850°N, 26.04.1998, 1 ♂, 1 ♀).

Pauropoda and Symphyla

Because of the activities of Gisin, Hüther, Remy and Scheller there are several records of these small myriapods from south-western Germany and the adjacent parts of Switzerland and France (Remy 1936, Scheller 1962, 1976, 1978). In contrast there are hardly any published records for Bavaria. By the pauropods only a single record (*Allopauropus helophorus* Remy, 1936 from Würzburg) is known from Bavaria (Hüther 1982).

Allopauropus helveticus Hansen, 1902

First record for Bavaria (W Freising-Eichenfeld, 11.726°E, 48.416°N, 03.07.2005, 1 juv. ♂).

Allopauropus hessei Remy, 1935

First record for Baden-Wuerttemberg (3 km NE Neipperg, 9.083°E, 49.116°N, 19.04.1997, 1 ♀).

Allopauropus tenellus Scheller, 1971

First record for Baden-Wuerttemberg (2 km E Schelklingen, 9.750°E, 48.366°N, 04.08.1993, 1 ♂).

Allopauropus vulgaris Hansen, 1902

First records for Bavaria (W Freising-Eichenfeld, 11.726°E, 48.416°N, 03.07.2005, 1 ♂; Reschmühlbach 3 km NW Kiefersfelden, 12.158°N, 47.631°N, 17.06.2005, 1 ♀).

Pauropus huxleyi Lubbock, 1867

First record for Bavaria (Laubenthal 8 km SE Weissenburg, 11.051°E, 48.978°N, 25.06.2005, 1 ♀, 1 juv.).

Stylopauropus pedunculatus (Lubbock, 1867)

First records for Bavaria (Laubenthal 8 km SE Weissenburg, 11.051°E, 48.978°N, 25.06.2005, 1 ♀; Blumenberg 2 km NW Eichstätt, 11.156°E, 48.903°N, 25.06.2005, 1 ♂; Marzlinger Au 5 km E Freising, 11.816°E, 48.406°N, 30.04.2005, 18 ♀♀; Reschmühlbach 3 km NW Kiefersfelden, 12.158°N, 47.631°N, 17.06.2005, 1 ♀, 1 juv.).

Stylopauropus pubescens Hansen, 1902

First records for Bavaria (Laubenthal 8 km SE Weissenburg, 11.051°E, 48.978°N, 25.06.2005, 1 ♂, 1 juv.; Marzlinger Au 5 km E Freising, 11.816°E, 48.406°N, 30.04.2005, 2 ♀♀, 1 juv.).

Brachypauropus hamiger Latzel, 1884

First record for Bavaria (Reschmühlbach 3 km NW Kiefersfelden, 12.158°N, 47.631°N, 17.06.2005, 1 ♀, 3 juv. ♀♀).

Geophilella pyrenaica Ribaut, 1913

First record for Baden-Wuerttemberg (Fürstenberg, 8.566°E, 47.883°N, 16.04.1993, 2 ♀♀, 1 juv.).

Scolopendrella notacantha Gervais, 1840

First record for Bavaria (Laubenthal 8 km SE Weissenburg, 11.051°E, 48.978°N, 25.06.2005, 1 ♀, 10 juv.).

Symphylella isabellae (Grassi, 1886)

First records for Baden-Wuerttemberg (2 km E Dotternhausen, 8.800°E, 48.200°N, 01.08.1998, 1 ♂, 1 juv.; 4 km NE Bebenhausen, 9.016°E, 48.583°N, 10.05.1996, 2 ♀♀, 4 juv.; 04.06.1996, 1 ♂, 5 juv.; 1 km N Steinenberg, 9.550°E, 48.866°N, 07.05.1997, 1 ♂, 2 juv.; 2 km W Durlesbach, 9.633°E, 49.900°N, 24.11.1994, 1 ♀, 1 juv.; 29.10.1996, 1 ♀; 2 km E Schelklingen, 9.750°E, 48.366°N, 04.08.1993, 2 ad.) and Bavaria (W Freising-Eichenfeld, 11.726°E, 48.416°N, 03.07.2005, 1 juv.). As the records indicate, the species seems to be quite common.

Symphylella vulgaris (Hansen, 1903)

First records for Bavaria (Scheyernforst 6 km SW Pfaffenhofen, 11.441°E, 48.491°N, 09.11.2000, 2 ♀♀; W Freising-Eichenfeld, 11.726°E, 48.416°N, 03.07.2005, 2 ♀♀, 4 juv.; Falkenstein, 1 km SSE Flintsbach am Inn, 12.128°E, 47.717°N, 07.08.2004, 1 ♀).

Symphylellopsis avernorum Ribaut, 1931

First records for Hesse (2 km S Gammelsbach, 8.966°E, 49.500°N, 01.04.1997, 3 juv.) and Baden-Wuerttemberg (Galgenberg S Schwäbisch Hall, 9.733°E, 49.100°N, 18.05.1997, together with *Geoglomeris subterranea*, 1 ♀; 2 km NW Crailsheim, 10.050°E, 49.150°N, 19.04.1997, 1 ♀).

Symphylellopsis subnuda (Hansen, 1903)

First records for Bavaria (Laubenthal 8 km SE Weissenburg, 11.051°E, 48.978°N, 25.06.2005, 1 juv.; Scheyernforst 6 km SW Pfaffenhofen, 11.441°E, 48.491°N, 09.11.2000, 13 juv.; Reschmühlbach 3 km NW Kiefersfelden, 12.158°N, 47.631°N, 17.06.2005, 1 juv.).

5. Acknowledgements

The following people are thanked for the collected material they provided for my study: Prof. Dr Ludwig Beck (Karlsruhe), Theo Blick (Hummeltal), Dr Paul (†) & Brigitte Bühler (Gschwend), Dr Kerstin Engel (Freising), Dr Doris Heimbucher (Nürnberg), Gerd Heusinger (Kulmbach), Dr Eva Junker (Tharandt), Dr Gunter Mann (Bingen), PD Dr Roland Melzer (Munich), Christian Pilz (Augsburg), Hanspeter Rausch (Neulußheim), Ernst Rückert (Karlsruhe), Hans-Peter Straub (Villingen), Markus Unsöld (Munich), Johannes Voith (Augsburg) and Stefan Zaenker (Fulda). Dr Karin Voigtländer (Görlitz), Anthony Barber (Plymouth) and Richard Desmond Kime (La Chapelle Montmoreau) and two unknown referees are thanked for helpful comments and their improvements on the English text.

6. References

- Armbruster, C. (1992): Wiederbesiedlung und Sukzession bei Chilopoden im flurbereinigten Rebgelände des Kaiserstuhls. – Unpublished Diploma Thesis, University of Freiburg i. Br., 140 pp.
- Arthur, W., D. Foddai, C. Kettle, J. G. E. Lewis, M. Luczynski & A. Minelli (2001): Analysis of segment number and enzyme variation in a centipede reveals a cryptic species, *Geophilus easoni* sp. nov., and raises questions about speciation. – Biol. J. Linn. Soc. **74** (4): 489 – 499
- , J. Johnstone & C. Kettle (2002): Ecological and behavioural characteristics of *Geophilus easoni* Arthur et al. and *G. carpophagus* Leach. – Bull. Brit. Myr. Isopod Grp. **18**: 26 – 32
- Attems, C. (1895): Die Myriapoden Steiermarks. – SB Ak. Wien, math.-naturw. Cl. **104** I: 117 – 238
- (1929): Myriapoda. 1. Geophilomorpha. – In: Das Tierreich, 52. Lfg. – Walter de Gruyter & Co., Berlin, Leipzig, XXIII and 388 pp.
- Blower, J. G. (1985): Millipedes. Keys and notes for the identification of the species. – Synopses of the British Fauna, (N. S.) **35**. – E. J. Brill, London, Leiden, 242 pp.
- Brölemann, H. W. (1913): Biospeologica. XXXI. Glomerides (Myriapodes) (première série). – Arch. zool. expér. gén. **52** (6): 387 – 445
- Christian, E. (1996): Die Erdläufer (Chilopoda: Geophilida) des Wiener Stadtgebietes. – Verh. Zool.-Bot. Ges. Österreich **133**: 107 – 132
- Crabill, R. E. (1955): Report of another European chilopod in eastern North America (Chilopoda). – Ent. News **66** (9): 416 – 419
- (1962): Plectrotaxy as a systematic criterion in lithobiomorphic centipedes (Chilopoda: Lithobiomorpha). – Proc. U.S. Nat. Mus. **113** (3459): 399 – 412
- Dettner, K. (1985): Die Arthropodenfauna (Gliedertiere) des Naturschutzgebietes und Bannwaldes »Waldmoor-Torfstich« im Nordschwarzwald. – In: Bücking, W. et al. (eds): Der Bannwald »Waldmoor-Torfstich«. – Mitt. der Forstl. Versuchs- und Forschungsanstalt Bad.-Württ. **3**: 137 – 150
- Dobat, K. (1975): Die Höhlenfauna der Schwäbischen Alb mit Einschluss des Dinkelberges, des Schwarzwaldes und des Wutachgebietes. – Jh. Ges. nat. Württemberg **130**: 260 – 381
- Eason, E. H. (1982): A review of the north-west European species of Lithobiomorpha with a revised key to their identification. – Zool. J. Linn. Soc. **74**: 9 – 33
- Fritsch, E. (1998): Die Höhlenfauna des Hirlatzmassivs. – In: Buchegger, G. & W. Greger (eds): Die Hirlatzhöhle im Dachstein. Wien, 407 pp.
- Fründ, H.-C. (1989): Untersuchung zur Biologie städtischer Böden. 5. Epigäische Raubarthropoden. – Verh. Ges. Ökol. **18**: 201 – 209
- & B. Ruzowski (1989): Untersuchung zur Biologie städtischer Böden. 4. Regenwürmer, Asseln und Diplopoden. – Verh. Ges. Ökol. **18**: 193 – 200
- Gruber, J. (1985): *Geoglomeris subterranea* Verhoeff, 1908, neu für Österreichs Fauna (Diplopoda, Glomerida). – Anzeiger österr. Akad. Wiss., math.-naturwiss. Kl. **121** (7): 111 – 116
- Hoess, R. (2000): Bestimmungsschlüssel für die *Glomeris*-Arten Mitteleuropas und angrenzender Gebiete (Diplopoda: Glomeridae). – Jahrb. Naturhist. Mus. Bern **13**: 3 – 20
- & A. Scholl (1999): The identity of *Glomeris quadrifasciata* C. L. Koch (Diplopoda: Glomeridae). – Rev. suisse zool. **106** (4): 1013 – 1024
- & – (2001): Allozyme and literature study of *Glomeris guttata* Risso, 1826, and *G. connexa* Koch, 1847, a case of taxonomic confusion (Diplopoda: Glomeridae). – Zool. Anz. **240** (1): 15 – 33
- Hoffmann, B. (1980): Vergleichende ökologische Untersuchungen über die Einflüsse kontrollierten Brennens auf die Arthropodenfauna einer Riedwiese im Federseegebiet (Südwestwürttemberg). – Veröff. Naturschutz Landschaftspflege Bad.-Württ. **51/52**: 691 – 714

- Hüther, W. (1982): Symphylen und Pauropoden des Bausenbergs. – Decheniana-Beih. **27**: 56 – 75
- Jeekel, C. A. W. (1999): On the status of the names *Geophilus proximus* C. L. Koch, 1847, *Geophilus insculptus* Attems, 1895, and *Geophilus oligopus* (Attems, 1895). – Myriapod Memoranda **1**: 71 – 79
- Kime, R. D. (1990): Spatio-temporal distribution of European millipedes. – In: Minelli, A. (ed.): Proceedings of the 7th International Congress of Myriapodology. – Brill, Leiden: 367 – 380
- Koren, A. (1986): Die Chilopoden-Fauna von Kärnten und Osttirol. 1. Geophilomorpha, Scolopendromorpha. – Carinthia II, Sonderheft **43**: 1 – 87
- (1992): Die Chilopodenfauna von Kärnten und Osttirol. 2. Lithobiomorpha. – Carinthia II, Sonderheft **52**: 1 – 138
- Kurnik, I. & K. Thaler (1989): Über Verbreitung und Taxonomie von Colobognatha der Alpen (Diplopoda, Polyzoniida). – Mitt. Schweiz. Ent. Ges. **62**: 183 – 198
- Mayr, E. (1967): Artbegriff und Evolution. – Verlag Paul Parey, Hamburg, Berlin, 617 pp.
- Meinert, F. (1870): Myriapoda Musei Hauniensis: bidrag til myriapodernes morfologi og systematik. – Naturh. Tidsskr., ser. **3** (7): 1 – 128
- Minelli, A. (1978): Note tassonomiche su *Geophilus insculptus* Att. e forme affini (Chilopoda). – Animalia **5**: 295 – 305
- Palmén, E. & M. Rantala (1954): On the life-history and ecology of *Pachymerium ferrugineum* (C. L. Koch) (Chilopoda, Geophilidae). – Ann. Zool. Soc. Zool.-Bot. Fenn. »Vanamo« **16** (3): 1 – 44
- Pedroli-Christen, A. (1993): Faunistik der Tausendfüßler der Schweiz (Diplopoda). – Doc. Faun. Helv. **14**: 1 – 167
- & A. Scholl (1996): *Rhymogona* (Diplopoda, Craspedosomatidae), un genre monospécifique. Deuxième Partie: Révision basée sur les résultats morphologiques, génétiques et faunistiques. – In: Geoffroy, J.-J., J.-J. Mauriès & M. Nguyen Duy-Jaquemin (eds): Acta Myriapodologica. Mém. Mus. natn. Hist. nat. **169**: 53 – 60
- Popp, E. (1965): Semiaquatile Lebensräume (Bülden) in Hoch- und Niedermooren. III. Die Bültentierwelt (außer Insekten). – Int. Revue ges. Hydrobiol. **50**: 225 – 268
- Read, H. J., G. B. Corbet & D. Jones (2002): *Cylindroiulus salicivorus* Verhoeff 1908: a millipede new to Britain. – Bull. Brit. Myr. Isopod Grp. **18**: 41 – 44
- Remy, P. (1936): Beitrag zur Fauna der Myriapoden Deutschlands, mit Beschreibung neuer Arten. – Zool. Anz. **116** (11-12): 310 – 320
- Ribaut, H. (1910): Sur un genre nouveau de la sous-tribu des Ribautiina Bröl. (Myriopoda-Geophilomorpha). – Bull. Soc. d'hist. nat. Toulouse **43**: 105 – 126
- Scheller, U. (1962): Some Symphyla and Pauropoda from South-Western Germany. – Mitt. badisch. Landesver. Naturk. u. Naturschutz, N. F. **8**: 261 – 265
- (1976): The Pauropoda and Symphyla of the Geneva Museum II. A review of the Swiss Pauropoda (Myriapoda). – Rev. suisse zool. **83** (1): 3 – 37
- (1978): The Pauropoda and Symphyla of the Geneva Museum V. A review of the Swiss Scolopendrellidae (Myriapoda, Symphyla). – Rev. suisse zool. **85**: 247 – 263
- Schubart, O. (1934): Tausendfüßler oder Myriapoda. I: Diplopoda. Die Tierwelt Deutschlands, **28**. Gustav Fischer Verlag, Jena 318 pp.
- (1964): Diplopoda, Symphyla, Pauropoda, Chilopoda. Ergänzung. – In: Brohmer, P., P. Ehrmann & G. Ulmer (eds): Die Tierwelt Mitteleuropas II. Band. Lief. 3. Ergänzung. – Verlag Quelle & Meyer, Leipzig, 55 pp.
- Spelda, J. (1991): Zur Faunistik und Systematik der Tausendfüßler (Myriapoda) Südwestdeutschlands. – Jh. Ges. Naturkd. Württemberg **146**: 211 – 232

- (1993): Hundert- und Tausendfüßer aus Missen der Umgebung von Oberreichenbach, Lkr. Calw (Chilopoda, Diplopoda). – Beih. Veröff. Naturschutz Landschaftspflege Bad.-Württ. **73**: 399 – 402
 - (1999a): Ökologische Differenzierung südwestdeutscher Steinläufer (Chilopoda: Lithobiida). – Verh. Ges. Ökologie **29**: 389 – 395
 - (1999b): Vorschlag für eine Rote Liste der in Baden-Württemberg gefährdeten Hundert- und Tausendfüßer (Myriapoda: Chilopoda, Diplopoda). Stand: August 1997 – In: Köppel, C., E. Rennwald & N. Hirneisen (eds): Rote Listen auf CD-ROM
 - (1999c): Verbreitungsmuster und Taxonomie der Chilopoda und Diplopoda Südwestdeutschlands. Diskriminanzanalytische Verfahren zur Trennung von Arten und Unterarten am Beispiel der Gattung *Rhymogona* Cook, 1896 (Diplopoda: Chordeumatida: Craspedosomatidae). – Ph.D. Thesis, University of Ulm. Part 1, 217 pp. Part 2, 324 pp.
 - (2000): Die Hundert- und Tausendfüßerfauna zweier Naturwaldreservate in Hessen (Myriapoda: Chilopoda, Diplopoda). – *Carolina* **57**: 101 – 110
 - (2001): Faunistic investigations on the soil fauna at the Muellertal (Luxembourg): Chilopoda, Diplopoda, Isopoda, Opiliones. – *Andrias* **15**: 49 – 53
 - (2004): Rote Liste gefährdeter Hundert- und Tausendfüßer (Myriapoda: Chilopoda, Diplopoda) Bayerns. – Schriftenreihe Bayerisches Landesamt Umweltschutz **166**: 339 – 342
 - (2005): The GloMyrIS project of GBIF: database structure and data exchange – *Peckiana* **4**: 107 – 116
- Thaler, K. & E. Meyer (1974): *Fragmenta Faunistica Tirolensia*, II. – *Ber. nat.-med. Ver. Innsbruck* **61**: 93 – 99
- Verhoeff, K. W. (1892): Neue Diplopoden der paläarktischen Region. – *Zool. Anz.* **15**: 377 – 387, 389 – 391
- (1894): Beiträge zur Diplopoden-Fauna Tirols. – *Verh. zool.-bot. Ges. Wien* **44**: 9 – 43
 - (1895): Beiträge zur Kenntnis palaearktischer Myriopoden. II. Aufsatz: Über mitteleuropäische Geophiliden. – *Arch. Naturg.* **61** (1): 346 – 356
 - (1901): Beiträge zur Kenntnis palaearktischer Myriopoden. XVII. Aufsatz: Über Diplopoden aus Süddeutschland und Tirol. – *Jh. Ver. vaterl. Naturkde. Württemberg* **57**: 81 – 111
 - (1908): Über Diplopoden. 10. (30.) Aufsatz: Zur Kenntnis der Juliden und über einige Polydesmiden. – *Arch. Naturg.* **73** (1): 423 – 474
 - (1910): Über Diplopoden. 19. (39.) Aufsatz: Iuliden und Ascospemphora. – *Jh. Ver. vaterl. Naturkde. Württemberg* **66**: 337 – 398
 - (1912a): Über Diplopoden. 50. Aufsatz: Rheintalstrecken als zoogeographische Schranken. – *Zool. Anz.* **39**: 215 – 220
 - (1912b): Über Diplopoden. 57. Aufsatz: Zur Kenntnis einiger mitteleuropäischer Chilognathen und der Schläfenorgane der Plesiocerata. – *SB Ges. naturf. Fr. Berlin* **8**: 415 – 438
 - (1915): Über Diplopoden. 82. Aufsatz: Zur Kenntnis der Plesiocerata. – *Zool. Anz.* **46** (1-2): 16 – 29, 43 – 62
 - (1916): Über Diplopoden. 76. und 77. Aufsatz: Beiträge zur Kenntnis der Gattungen *Macheiriophoron* und *Craspedosoma*. – *Zool. Jb. Syst.* **39**: 273 – 416
 - (1928): Geophilomorphen-Beiträge und eine *Lithobius*-Form. – *Mitt. Zool. Mus. Berlin* **14** (2): 227 – 286
 - (1935): Quer durch Schwarzwald und schweizerischen Jura (Chiemgau), Chilopoden. – *Verh. naturw. Ver. Karlsruhe* **31**: 181 – 208

-
- (1937a): Streifzüge durch Spessart, Odenwald und Hardt: Diplopoda. – Ber. naturf. Ges. Freiburg **35**: 162 – 195
 - (1937b): Chilopoden-Studien. Zur Kenntnis der Lithobiiden. – Arch. Naturg., N. F. **6**: 171 – 257
 - (1940): Chilopoden von Kärnten und Tauern, ihre Beziehungen zu europäischen und mediterranen Ländern und über allgemeine geographische Verhältnisse. – Abh. Preuß. Akad. Wiss., math.-naturwiss. Kl. **5**: 1 – 39
 - (1941): Zur Kenntnis der *Polyxenus*-Arten. – Zool. Anz. **133** (11-12): 259 – 264
 - Voigtländer, K. (1988): Für die DDR neue oder seltene Myriapoden (Diplopoda, Chilopoda). – Abh. Ber. Naturkundemus. Görlitz **62** (10): 21 – 25
 - (1994): A contribution to our knowledge of the taxonomy and distribution of *Lithobius austriacus* Verhoeff, 1937 (Chilopoda, Lithobiidae) in Germany. – Abh. Ber. Naturkundemus. Görlitz **68** (1): 23 – 37
 - & H. Hauser (1998): Ergebnisse der Sammelexkursion der II. Arbeitstagung deutschsprachiger Myriapodologen. – Ent. Nachr. Ber. **42**: 246
 - Zapparoli, M. (1988): Chilopodi di Turchia I. Revisione dei *Lithobius* del gruppo *piceus* (Chilopoda, Lithobiomorpha). – Fragm. Entomol. **21** (1): 17 – 60
 - (1994): Note tassonomiche e faunistiche su Chilopodi della Grecia (Chilopoda). – Fragm. Entomol. **26** (1): 11 – 66
 - Zier, L. (1985): Das Pfrunger Ried. Entstehung und Ökologie eines oberschwäbischen Feuchtgebietes. – Führer Natur- u. Landschaftsschutzgebiete Bad.-Württ. **10**: 1 – 308

Author's address:

Dr Jörg Spelda
Zoologische Staatssammlung München
Münchhausenstr. 21
81247 München, Germany
e-mail: spelda@t-online.de