The collection Myriapoda of the Senckenberg Museum of Natural History Görlitz

KARIN VOIGTLÄNDER[1]* and PETER DECKER[1,2]

[1] Senckenberg Museum of Natural History Görlitz, Görlitz, Germany

[2] Blumenstraße 5, 02826 Görlitz, Germany

* Corresponding author: Karin Voigtländer (karin.voigtlaender@senckenberg.de)

Received: 10 November 2022. Accepted: 24 November 2022

Abstract. The collection Myriapoda belongs to the younger collections of the Görlitz museum. Its establishment initiated in connection with the development of the museum's profile as a museum of soil zoological research and was based on sampling campaigns and field studies done by Wolfram Dunger (†) during the 1960s and 1970s. In 1979 Karin Voigtländer was employed as curator and from then on increased the collection continuously. In addition to the museum's own collecting activities, new acquisitions came to the museum through various institutions and persons. The collections Diplopoda and Chilopoda currently incorporate over 100,000 digitally registered individuals from more than 460 (valid) species with over 48,200 records from more than 45 countries at 4,400 localities worldwide. Over a long period of time they were concentrated on Central European species with few exceptions. Recently, the focus has been extended to the Mediterranean and Alpine regions as well as Southeastern Europe. The collection of Symphyla currently includes 10 species, that of Pauropoda 15 species, both from about 50 localities mainly in Germany.

Zusammenfassung. Die Sammlung Myriapoda des Senckenberg Museums für Naturkunde Görlitz. Die Sammlung Myriapoda gehört zu den jüngeren Sammlungen des Görlitzer Museums. Ihre Entstehung hängt unmittelbar mit der Profilierung des Museums als bodenzoologische Forschungsstelle durch Wolfram Dunger (†) zusammen. Sie begann im Wesentlichen mit den in den 1960er und 70er Jahren durchgeführten Probennahmen zu bodenzoologisch-ökologischen Fragestellungen. 1979 wurde Karin Voigtländer als Kuratorin eingestellt und vergrößerte von da an die Sammlung kontinuierlich. Neben der eigenen Sammeltätigkeit kamen Neuzugänge über verschiedene Institutionen und Personen an das Museum. Die Sammlungen Diplopoda und Chilopoda umfassen derzeit über 100.000 digital erfasste Individuen aus mehr als 460 Arten mit über 48.200 Nachweisen von ca. 4.400 Lokalitäten aus ca. 45 Ländern. Sie konzentrierten sich über einen langen Zeitraum mit wenigen Ausnahmen auf mitteleuropäische Arten. In jüngster Zeit wurde der Fokus auf den Mittelmeer- und Alpenraum sowie Südosteuropa ausgedehnt. Die Sammlung an Symphylen umfasst gegenwärtig 10 Arten, die der Pauropoden 15 Arten, beide von ca. 50 Lokalitäten vor allem Deutschlands.

Keywords. Germany, history, Symphyla, Pauropoda, Diplopoda, Chilopoda

1 Introduction

Biological museums have the specific mission as research institutions to maintain and develop special biology. A prerequisite for any effectiveness in this field is the availability of biological original material in collections. A biological collection as such is a scientific archive that documents spatially and temporally concrete biotic facts and whose information is contained both in the preserved original and in the accompanying documentation (DUNGER, 1978, 1988, WANNER et al. 1999, DIEULIIS, 2015; CERÍACO et al., 2016; ALBERTI, 2017, DAVIS et al. 2022). It is thus an important pillar of basic research, available to scientists

worldwide, e.g. for taxonomic-systematic, morphological, ecological, biogeographical, conservation or molecular biological research.

The Senckenberg Museum für Naturkunde Görlitz (Senckenberg Museum of Natural History Görlitz, SMNG) has been a centre of soil biology research in Central Europe for more than 60 years and, from the beginning, has strived to build up, maintain and further expand collections of soil animals, including not least the Myriapoda collection.

Under the guidance of Dr Karin Voigtländer, research in the Department of Soil Zoology/Myriapoda focuses on the ecology and taxonomy especially of European centipedes and millipedes (Chilopoda and Diplopoda). In order to enable this research, it is essential to maintain an extensive scientific collection of specimen material. This collection must be constantly expanded to enable current research projects at national and international level.

The paper gives an overview of the historical development of the SMNG's comparatively young myriapod collection, its contents, aims and significance for national and international research.

Last but not least, it is the authors' intention to honour the outstanding achievement of the founder of the collection, director of the museum and important soil zoologist, Prof. Dr Wolfram Dunger, with this publication (see also VOIGTLÄNDER & BURKHARDT 2019).

2 History, collection-concepts and development of the SMNG Myriapod-Collection

The history of the collection of Myriapoda is inextricably linked to the history of the museum in Görlitz. The Senckenberg Museum of Natural History Görlitz emerged from the Natural History Society (Naturforschende Gesellschaft zu Görlitz) founded in 1811 (DUNGER 1986, HAMMERSCHMIDT 2018). At that time, a collection of millipedes or other soil organisms was not in contemporary scientific focus, and the Society's efforts concentrated on traditional subjects such as botany, entomology, ornithology and mammalogy, where important collections were created (DUNGER 1986).

After the Second World War and the dissolution of the Natural History Society, the museum, soon to become the State Museum of Natural History Görlitz, took over the tasks of the Society and continued to work in their spirit. In order to ensure the preservation of the museum as such, however, a reorientation combined with a reprofiling into a research museum became necessary, and a focussing of research on soil-dwelling organism groups seemed appropriate.

Soil zoology as a young, emerging science first came to light around 1950 with publications by GHILAROV (1949), FRANZ (1950), KÜHNELT (1950), and DELAMARE-DEBOUTTEVILLE (1951) in three European countries almost simultaneously. At German universities, this modern and promising research topic soon appeared in Mainz, Kiel, Braunschweig, but from 1953 on also in Leipzig (Wolfram Dunger), and soon as well in Halle and Jena. The research taking place there confirmed the finding that decomposition processes of organic matter in soil, which are so important for soil fertility, could no longer be explained merely by the effect of microorganisms, as already described. The decomposition process also essentially depends on the activity of soil animals, a multitude of hardly known small animals that is incalculable in terms of both number of individuals and diversity of species. It goes without saying that a traditional museum was out of the question to fulfil such a progressive task. At natural history museums in the traditional sense, still almost no basic ecological-systematic research was carried out at this time, although knowledge of the species involved in

the decomposition processes of soils is a fundamental prerequisite for understanding ecosystem interrelationships. However, the "taxonomic background", i.e. both reference collections and competent taxonomists, is the potential of a natural history museum.

3 Collection concept of the museum and the department of Soil Zoology

The State Museum of Natural History Görlitz participated in a number of large research projects in the German Democratic Republic (GDR, Fig. 3 no. 1, 2, 4) and also after 1989 in reunified Germany (Fig. 3, no. 6, 7). Among other results, these research projects also led to a targeted expansion and development of the museum's collections and collection work. The typological concept was replaced by the concept of voucher collection: if possible, every sampling should be documented by preserved objects and thus made accessible for later examination. First, a system of complex sampling (still used today, albeit modified) was developed, combining trap catches, area controls with expulsion agents, sorting of large soil samples in the laboratory and special extraction procedures for soil arthropods and other groups. In this system, the most important soil animal groups are separated, conserved and recorded, and the material finally forwarded to the respective specialised scientists. Each sample is given a logbook number (DNR, the so-called „Dunger-Number", dedicated to Prof. Dr Wolfram Dunger). This DNR is assigned to each object from a given sample throughout the whole process from sampling and separation onwards, through scientific processing until its storage in the collections. All site-related and other parameters are linked to this number. All studied animal groups from a given site and sampling date are linked via this number, which makes community ecology work possible. The Myriapoda collection was also designed in accordance with the general collection concept of the Department of Soil Zoology of the museum.

This principle of complex sample and accompanying data acquisition formed the basis for the development of the ecological open access data warehouse for soil biodiversity "Edaphobase" and its evaluation tools, (www.edaphobase.org; BURKHARDT et al. 2014).

4 Development of the Myriapoda collection

4.1 Preface

In 1979, Karin Voigtländer (Fig. 1) took over the former section "Soil Macroarthropods" (today section "Myriapoda") and led this section until her retirement in 2021. It comprises the sub-collections Myriapoda, Isopoda and Lumbricidae, among which only the Myriapoda – and to a lesser extent the lumbricids – are scientifically processed. This collection is based on samplings done by Prof. Dr Wolfram Dunger (obituary see VOIGTLÄNDER & BURKHARDT 2019) and the soil zoology team of the SMNG (see also VOIGTLÄNDER 2002).

As one of her first tasks, she began to inventory the collection (Fig. 2), tube by tube and species by species, using the Dunger-Number (see above). Thus, it came out that already at that time, most of the East German species were present in the collection. Since the curator increasingly added her own collections or material from projects of other institutions or museums that exclusively concerned myriapods, an additional logbook was created and the specimens were kept under the VNR (Voigtländer-Number). This meant that samples from collective samples of all soil animal groups worked on at the SMNG were from

Figure 1: Dr Karin Voigtländer with old and large scolopendromorph centipedes. Photograph: Jacqueline Gitschmann.

Figure 2: View into the Chilopoda collection cabinets of the collection Myriapoda of the Senckenberg Museum of Natural History Görlitz. Photograph: Jacqueline Gitschmann.

now on given two numbers, a DNR-Number and a VNR-Number. By the mid-1990s, 86% of the total Diplopoda and Chilopoda material was determined to species level and fully recorded in. The remainder is undetermined material with complete records in accession catalogues.

The research took place mainly "on one's own doorstep" within the framework of soil zoological-ecological questions of large research projects of the GDR or self-selected relevant questions in the 1960s to the 1980s (see explanations to Fig. 3, VOIGTLÄNDER 2002). So, the project-related field surveys mostly yielded material for the collections only from a limited area, primarily from the Upper Lusatia (the wider surroundings of Görlitz), Lower Lusatia, the Leipzig area and the surroundings of Jena (esp. Leutra valley, Steudnitz). International projects, especially with partners from non-socialist countries, were not feasible for political reasons, a handicap that also influenced the collections and collection conception. Therefore, the sampling activities were oriented very early on towards obtaining material from characteristic sites from different parts of the GDR and nearby (socialist) countries. Here, the samplings of the Institute for Landscape Research and Nature Conservation, working group Dresden, from nature reserves in the GDR are particularly worthy of mention.

From 1990, after German reunification and the opening of the borders, the focus of the collection changed. Field trips in foreign countries increasingly came to the fore (see 4.3). Apart from working on some synecological projects (e.g. "Nationwide field monitoring studies" – TOSCHKI et al. 2021), research in the last 10 to 15 years has to some extent moved away from ecological issues and increasingly focused on taxonomic research. At the same time, however, regional research in the sense of continuing the traditions of the Natural History Society to Görlitz was not neglected, as evidenced by the collection holdings and publications, providing a unique opportunity for long-term studies (e.g. DUNGER & VOIGTLÄNDER 1990, 2009), such as the investigation of post-mining sites of Eastern Germany and the Neisse Valley, where the development of the myriapod and isopod fauna is continuously examined (VOIGTLÄNDER & DUNGER 1992, VOIGTLÄNDER et al. 1993).

With the advent of computer technology in the 1990s, a database software was immediately developed "on our own" with the help of fellow campaigner, which enabled queries on any species based on the collection data coupled with literature references. For this purpose, all the information contained in the logbooks and the existing literature data were digitised in the database. In addition to the standard information such as location, date, etc., special emphasis was always laid on various accompanying information, especially habitat information. This "home-made" software and the data recorded at that time formed the basis for the subsequent developing of a professional ecological database for soil animals, as it exists today in open access with Edaphobase.

4.2 Growth of the collection of Diplopoda and Chilopoda

At the end of the 1950s, Wolfram Dunger took over the management of the SMNG. He not only brought the vision of establishing the still young research field of soil zoology to the museum, but also initiated ideas for the first projects, which he had already worked on at Leipzig, his former place of academic studies and work. His collection of myriapods, which he had already started in his student days, and the material from these first projects formed the basis of the museum's today's collection.

Over the past 60 years, the collection grew steadily, as can be seen in Figure 3.

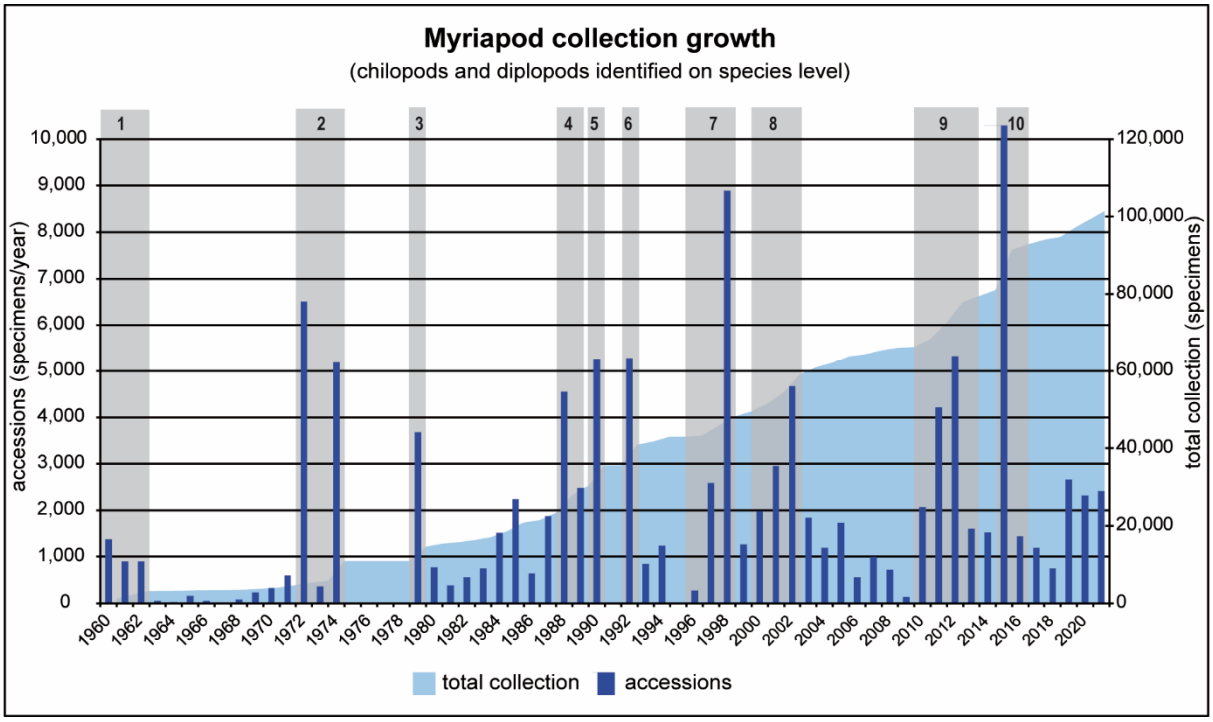

Figure 3: The development of the collection of determined Diplopoda and Chilopoda during its establishment at the beginning of the 1960s until now. The curve shows the increase in determined individuals of Diplopoda and Chilopoda in total, the columns the increase per year. Collections and acquisitions that led to a very significant increase in the number of individuals are explained separately.

Explanations to Fig. 3:

Sites are listed and described as follows: consecutive number (bold) – collector(s) and responsible collector (in brackets), short description of the project: "short name". Citation of important publications. SMNG indicates collective surveys of the Staatliches (now Senckenberg) Museum of Natural History Görlitz.

1 – SMNG (W. Dunger), soil zoological investigations of opencast mining dumps of Böhlen (near Leipzig) and of Berzdorf (near Görlitz), primary colonisation and succession: „Halden-Projekt". a.o. DUNGER (1965, 1967a, 1968).

2 – SMNG (W. Dunger), participation in the GDR Ecology Project with investigations of a grassland-forest catena of the Nature protection area Leutra valley near Jena; a.o. bioindication research: „Leutratal-Projekt". DUNGER & STEINMETZGER (now Voigtländer) (1981), VOIGTLÄNDER & DUNGER (1998), VOIGTLÄNDER (1998).

3 – SMNG (W. Dunger, K. Voigtländer), species spectrum of a former plenter forest near Deutsch Paulsdorf (Görlitz).

– Zoological Institute of the University of Halle (K. Steinmetzger), investigations in different forest communities of the Hakel forest (northern Harz foreland). STEINMETZGER (1982), VOIGTLÄNDER (1983).

4 – SMNG (W. Dunger), soil zoological investigations of opencast mining dumps of Berzdorf near Görlitz, primary colonisation and succession: „Halden-Projekt". DUNGER & VOIGTLÄNDER 1990; DUNGER (1998).

– investigations in forest areas damaged by SO_2 pollution over several years:

– SMNG (W. Dunger, K. Voigtländer), Neiße valley near Görlitz: „Neißetal-Projekt". DUNGER et al. (1972), VOIGTLÄNDER & DUNGER (1992), VOIGTLÄNDER et al. (1993).

– University Halle (K. Voigtländer), Dübener Heide near Halle. VOIGTLÄNDER (1995).

5 – P. Schnitter, myriapods from dry sites (Nature Protection Areas) in the Halle area. VOIGTLÄNDER (1996a).

6 – SMNG (W. Dunger), characterisation of selected soil animal communities in the urban area of Leipzig. Structure, use and impact of industrial emissions on soils, vegetation and soil fauna: „Urbanprojekt Leipzig". DUNGER et al. (1992).

– University Munich (F. Makeschin), influence of lime fertilisation on the myriapod fauna in forests of Bavaria. VOIGTLÄNDER (2007).

7 – SMNG (W. Dunger, M. Wanner), soil zoological investigations of opencast mining dumps of Berzdorf near Görlitz, primary colonisation and succession: „Halden-Projekt". e.g. DUNGER & WANNER (2001), DUNGER & VOIGTLÄNDER (2005), DUNGER & VOIGTLÄNDER (2009).

– Landesamt für Umweltschutz Sachsen-Anhalt (P. Schnitter), ecological studies in endangered biotope types of Saxony-Anhalt. I. Dwarf shrub heaths, xeric and mesoxeric meadows. VOIGTLÄNDER (2003a, b).

– Nationalparkverwaltung Hochharz (P. Sacher), investigations on the millipede and centipede fauna of the Brocken (Harz) and surroundings. VOIGTLÄNDER (1999).

– Institut für Zoologie der Universität Gießen (J. Dauber), „Local vs. landscape controls on diversity" in the Dill-Lahner mountain region. DAUBER et al. (2005).

8 – University Greifswald (G. Alberti, D. J. Russell): „Future-oriented forestry Northeast German Plain". Unpublished research report.

– SMNG (D. J. Russell, K. Voigtländer), Impact of the flood disaster of August 2002: „Mulde-Projekt". Unpublished research report.

– SMNG (B. Balkenhol, K. Voigtländer), structure and succession of the predator community in a red-oak chronosequence on reclaimed soil: „Subicon-Projekt". BALKENHOL et al. (2006), VOIGTLÄNDER & BALKENHOL (2006).

– Landesamt für Umweltschutz Sachsen-Anhalt (P. Schnitter, M. Trost), Species and Biotope Conservation Programme Saxony-Anhalt. Landscape area Saale-Unstrut-Triasland. VOIGTLÄNDER (2008a, b).

9 – K. Voigtländer and H. Reip, taxonomic and ecofaunistic investigations of the myriapod fauna of Andalusia (Spain). AKKARI & ENGHOFF (2017), DJURSVOLL (2019), READ (2022) VOIGTLÄNDER & REIP (2013).

– Landesamt für Umweltschutz Sachsen-Anhalt (P. Schnitter), characteristic animal species of the FFH area „Huy northern of Halberstadt". VOIGTLÄNDER & DECKER (2014, 2018).

– Landesamt für Umweltschutz Sachsen-Anhalt (P. Schnitter), faunistic studies on characteristic species of the FFH habitat types: „Colbitz-Letzlinger Heide". VOIGTLÄNDER, (2015).

10 – K. Voigtländer and H. Reip, taxonomic and ecofaunistic investigations of the myriapod fauna Basque region (Spain). ANTIĆ & MAURIÈS 2022, READ 2022, REIP & VOIGTLÄNDER in prep.)

– Working Group of the German-speaking Myriapodologists, projects in diverse federal states of Germany (Hesse, Thuringia, Bavaria, Lower Saxony, Mecklenburg-Western Pomerania)

– H. Reip and H. Pohl, taxonomic and ecofaunistic investigations of the myriapod fauna of Tunisia. VOIGTLÄNDER et al. (2022).

In addition to these extensive accessions, over the years repeated transfers of material from individuals and institutions occurred, combined with requests for identification or collaboration in their projects, which are although included in Figure 3 but not listed in detail:

In the 1960s and 70s, extensive material came from the Institute for Land Research and Nature Conservation Halle (ILN), ILN Dresden branch (Helmut Richter, Heinz Hiebsch) and from the private persons Rudolf Ibisch (Sollschwitz) and Erich Kleinsteuber (Karl-Marx-Stadt, today: Chemnitz) with the aim of recording the myriapod fauna of the nature and landscape conservation areas of eastern Germany (VOIGTLÄNDER & HAUSER 1999). For the Institute of Agricultural Zoology Leipzig (Heinz Geiler), the millipedes were determined from various arable fields and added to the collection. At regular intervals, Ronald Bellstedt (Museum der Natur Gotha) donates myriapods from the Thuringian region to our collection. For various research projects at the University of Jena (Hans-Ulrich Peter, Friedrich Sander), diplopods and chilopods were determined by K. Voigtländer in the early 1980s and included in the SMNG collection (PETER (1984, PETER & ROTH 1996), as well as chilopod collections from the urban area of Gera by Joachim Hensel (HENSEL 1988). For studies on the food spectrum of the Little Owl, Herbert Grimm, Erfurt, repeatedly sent in a large number of myriapods from trap catches and Little Owl pellet collections (VOIGTLÄNDER 1987a). At the end of the 1980s, diplopods and chilopods from caves in central Germany, collected by Rolf Eckert, were identified and added to the Section's collection (ECKERT & BECKER 1995). The influence of different tillage methods was described on the basis of the chilopod fauna in the vineyards of the Kaiserstuhl area, based on collections by Angelika Kobel-Lamparski (VOIGTLÄNDER et al. 2001). In 2020, Birgit Balkenhol and Henning Haase contributed material from the "Spirea project", which deals with the invasion of this plant and its impact on arthropod communities (HAASE et al. 2019).

The majority of material to date (over 15,000 individuals) came to our museum from the Saxony-Anhalt State Office for Environmental Protection, mediated by Dr Peer Schnitter, with the request for identification and collaboration on their projects. This intensive collaboration started in 1990 and continues to this day, albeit through other intermediaries (including the Entomologen-Vereinigung Sachsen-Anhalt e. V.) (a.o. VOIGTLÄNDER 2021).

In the course of the last 20 years, the collection of the Myriapoda Section has been significantly enriched by the donation of private collections by volunteers and visiting scientists of the Myriapoda Section (Dr Dragan Antić, Dr Peter Decker, Dr Hans Reip, Dr Jörg Spelda). These parts of the collection are currently being successively integrated into the myriapod collection of the SMNG by adding the data to "Edaphobase" and are therefore not yet included in Figure 3.

For more than 15 years, the Senckenberg Museum für Naturkunde Görlitz has received extensive diplopod material at irregular intervals from the volunteer **Dr Hans Reip** (Jena), an internationally recognised specialist in this group. The material comprises over 16,000 individuals from 256 taxa and is precisely determined, scientifically correctly labelled and largely provided with ecological data (e.g. ANTIĆ et al. 2014, ANTIĆ & REIP 2020, EVSYUKOV et al. 2020, REIP & VOIGTLÄNDER 2009, VOIGTLÄNDER & REIP 2013, VOIGTLÄNDER et al. 2022). Furthermore, he donated 650 tubes with undetermined Chilopoda and a few Diplopoda to the museum at the end of 2015. This material comes from various smaller sampling campaigns, mainly from international excursions, partly from biodiversity hotspots (e.g. Caucasus, Southern Alps, Balkans). It is therefore of particular importance for scientific work and as specimen material for the myriapod collection of the Senckenberg Museum für Naturkunde Görlitz.

Two Baltic ambers were also taken over (Chordeumatida from Vilnius, 30-45 mill. years; Polyxenida *Phryssonotus* sp., Bitterfeld Goitzsche, age 40 - 55 >mill. years, both with picture documentation by H. Reip).

The private collection of **Dr Peter Decker** (Görlitz) was donated to the SMNG in 2022. The collection material originates from 1980 to 2016 from various regions and altitudes in North Rhine-Westphalia (approx. 60 districts/cities) built up with the great support of Karsten Hannig. It comprises ca. 16,000 individuals from 92 species (54 Diplopoda, 38 Chilopoda) from ca. 600 sites. Particularly noteworthy are 8 species found for the first time in Germany and 6 in North Rhine-Westphalia, as well as voucher specimens of this area that are rare nationwide, endangered or previously only known from literature (DECKER & HANNIG 2008, 2010, 2011, DECKER et al. 2015).

The SMNG Myriapoda Collection, which until now mainly covered parts of Central, Eastern and Southern (West) Germany, is geographically completed by the North Rhine-Westphalian Decker Collection and thus considerably enhanced.

All collection data are digitised and geo-referenced with 15 to 30 accompanying items of information for Edaphobase.

Another private collection which came to the SMNG as a donation in 2020 is the collection of **Dr Jörg Spelda** (München). It is of unique value because it forms the basis of the collector's dissertation (SPELDA 1999a) and projects a.o. of the university of Stuttgart-Hohenheim (e.g. GLÜCK & SPELDA 1996, KENTER et al. 1997, SPELDA 1996) and is the only comprehensive area-wide treatment of the diplopod and chilopod fauna of the state of Baden-Württemberg. At the same time, it is the largest private collection of myriapods of the Bavarian Alps and the Bavarian Forest. It contains a large part of rare and extremely rare species of Baden-Württemberg and Bavaria and the whole of Germany and formed the basis for the Red Lists of these two federal states (SPELDA 1999b, 2003) and Germany, respectively. All data are digitised (approx. 50,000 records) and are publicly available in Edaphobase.

In November 2020, extensive undetermined alcohol material Diplopoda/Chilopoda pre-sorted on family/order level incl. documentation of accompanying data on localities, collection technique etc. was donated to the SMNG myriapod collection by the **Bavarian State Collection of Zoology** (origin: Bavarian State Office for the Environment, LfU). With the exception of a few areas in the south and the Bavarian Forest, Bavaria is very little studied concerning myriapods compared to other federal states (e.g. Saxony-Anhalt) and urgently needs further study, especially as the (north)western distribution limits of some (south)eastern species are located there. The samplings come from very high-quality nature reserves, which also promise some special findings of myriapods. The nature reserves are very well studied, so that extensive meta data is available. Since the endangerment of the species' habitats plays an increasingly important role for the German Red Lists, it is necessary to have as much accompanying information as possible (habitat selection, abiotic factors) at hand.

For the update and evaluation of the Red Lists of the endangered Chilopoda and Diplopoda of Germany, which is planned to be carried out in the coming years, it is absolutely necessary to close the processing deficits as far as possible.

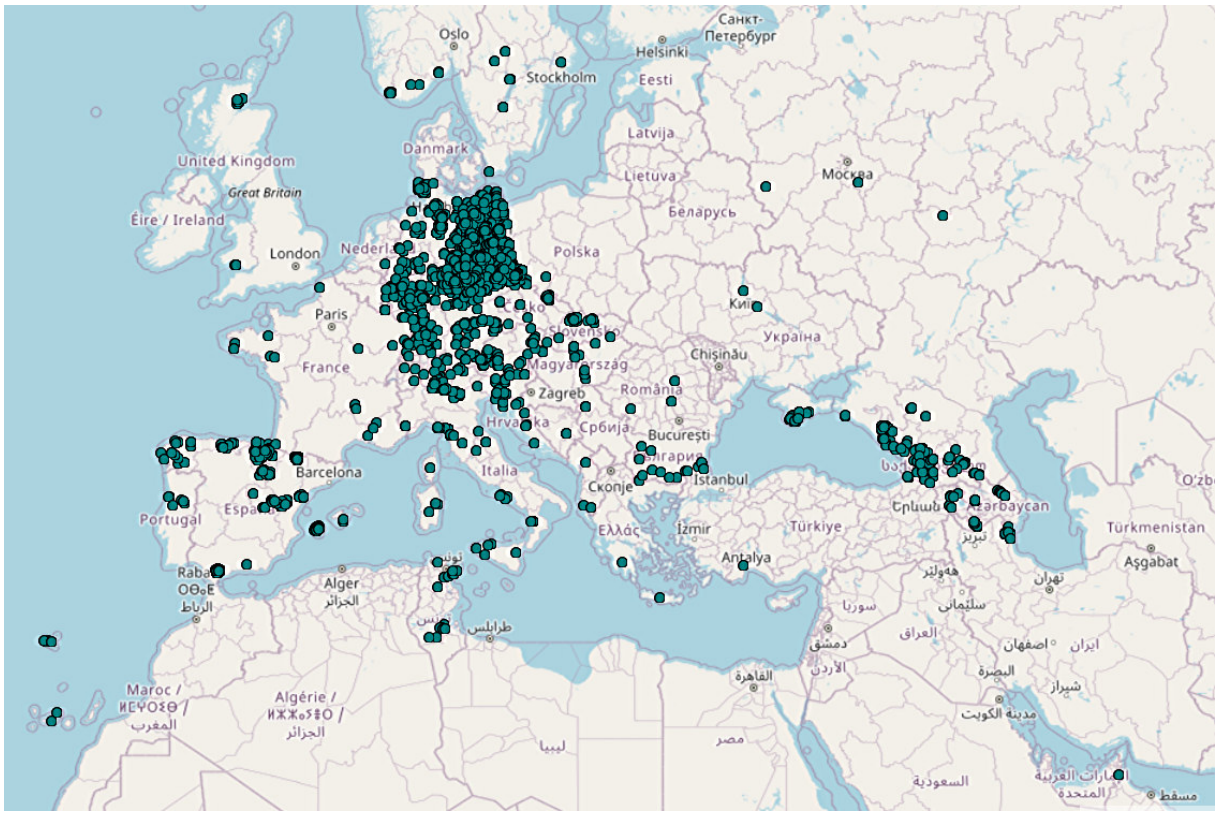

Figure 4: Distribution 46,136 records of Myriapoda from 3,913 localities from the Senckenberg Museum of Natural History Görlitz in Europe and adjacent areas in the soil zoological data warehouse Edaphobase. Map copyright: OpenStreetMap contributors.

Altogether, the collection Myriapoda comprises over 100,000 specimens from about 460 (valid) species, with more than 48,200 records from over 45 countries and 4,400 localities worldwide, with focus on Europe and adjacent areas (Fig. 4).

4.3 Stocks of foreign undetermined material

The largest part of the previously undetermined material was collected in museum field trips (Australia, Morocco, Portugal, Slovakia, South Africa, Southeastern Europe, Spain, Switzerland, Thailand, Mexico, USA). The collection has been enriched by material collected by Frank Walter (Hamburg) in diverse countries (e.g. Taiwan, Romania, Spain, France). Especially the undetermined material from Southeastern Europe and adjacent areas (Iran, Armenia, Azerbaijan, Croatia, Georgia incl. the Caucasus, Moldova, Slovenia, Turkey), as well as New Zealand, are currently being processed by various specialists.

The University of Lüneburg (Germany) and the Museum of San Sebastian (Spain) have donated large quantities of material from China and Spain to the Myriapoda Section.

5 The Symphyla and Pauropoda collection

The Symphyla and Pauropoda collection, too, as a sub-collection of the Myriapoda goes back to the work of Wolfram Dunger, especially in the 1960s and 1970s. He not only initiated the collections or the selection work from the soil samples of all large and small projects of the museum but also took over the processing of these difficult taxon groups. The first publications referring to collection material were in particular on the local faunas of the Leipzig floodplain forest, Upper Lusatia and Saxony (DUNGER 1958, 1966, 1967b) as well as the publications on recolonisation and succession of the dumps of the opencast lignite mining areas of Central Germany and Upper Lusatia (Berzdorf) by the soil fauna (e.g. DUNGER 1968, DUNGER & VOIGTLÄNDER 1990).

In the following years, the collections of undetermined Symphyla and Pauropoda material grew steadily, as both groups were always part of the standard sampling programme in the museum's major soil zoology projects. In addition to a great amount of undetermined material from Germany (e.g. an extensive private collection from mainly Hesse given by Andreas Allspach), there is also material from the Czech Republic, Slovakia, Poland, Hungary, Caucasus, Australia) from own samplings or by Wolfram Dunger. For the time being, no one was found for further taxonomic processing and determination of these two taxon groups. The complete lack of specialists at national and international level, as has been the case for decades, makes it considerably more difficult to deal with both groups.

Fortunately, during a scientific voluntary service from November 1999 to February 2001, the symphylan inventories were looked through and partially identified by Christian Düker. For the Scolopendrellidae 6 species and for the Scutigerellidae 1 species could be identified. Another part is determined on family level. A datafile of the determined specimens was established by Düker. A large part of the material could not be determined to the species, as they were juveniles of different stages.

The collection received a strong boost in the 2010s. As part of the further development of the data warehouse Edaphobase into a comprehensive analysis tool, data on various soil animal groups, including symphylans and pauropods, and comprehensive site parameters were collected in the four federal states of North Rhine-Westphalia, Saxony, Bavaria and Saxony-Anhalt ("Nationwide field monitoring studies" – TOSCHKI et al. 2021). Here, Ulrich Burkhardt was responsible for the determination of the material, actually continued with the support of Karin Voigtländer.

The Symphyla collection currently comprises 10 species, the Pauropoda collection consists of 15 species, both from appr. 50 localities, mainly German localities (VOIGTLÄNDER et al. 2016). This is only a small fraction of the species known for Germany (18 taxa of Symphyla, 36 taxa of Pauropoda, VOIGTLÄNDER et al. 2016), which is partly due to the large number of undeterminable juveniles in the collections. On the other hand, the taxonomy of many species and species groups is insufficiently clarified and urgently needs revision.

The Symphyla and Pauropoda from historical collections are stored in 70% ethanol, whereas currently collected material is mainly stored in 96% undenatured ethanol in the refrigerator at -80 °C, which allows for subsequent genetic studies as a basis for integrative taxonomic studies.

Outlook: We have currently begun these studies. The results so far support the hypothesis that some of the species known for Germany today, especially symphylan, hide entire species groups. An extensive taxonomic revision is planned.

Table 1: The Myriapoda-type material of the SMNG collection Myriapoda.

VNR	Taxon	Original description	♂	♀	juv. ♂	juv. ♀	juv.	not diff.	Typus	Origin
	Diplopoda									
013571	*Balkanopetalum petrovi*	Stoev & Enghoff, 2003	2						Paratypes	Bulgaria
013657	*Ommatoiulus malleatus*	Akkari & Voigtländer, 2007	14	16		3			Paratypes	Tunisia
013554	*Zoosphaerium arborealis*	Wesener & Sierwald, 2005		3					Paratypes	Madagascar
016671	*Hyleoglomeris specialis*	Golovatch, 1989	1	1					Paratypes	Russia
016673	*Hyleoglomeris armeniaca*	Golovatch, 1989	1	1					Paratypes	Armenia
0165461	*Solentanodesmus insularis*	Antić & Reip, 2014 In: ANTIĆ et al. (2014)	1	1					Paratypes	Croatia
016547	*Velebitodesmus cavernicolus*	Antić & Reip, 2014 In: ANTIĆ et al. (2014)	2						Paratypes	Croatia
016548	*Verhoeffodesmus fragilipes*	Strasser, 1959		1					Topotype	Croatia
014997	*Ommatoiulus reipi*	Akkari & Enghoff, 2012	1						Paratype	Spain
016206	*Ommatoiulus stellaris*	Akkari & Enghoff, 2017	4	17 ♀/juv.					Paratypes	Portugal
018395	*Alpinella waltheri*	Antić & Makarov, 2016	1						Holotype	Georgia
018396	*Caucasominorus billi*	Antić & Makarov, 2016	2	1					Paratypes	Azerbaijan
019311	*Leucogeorgia prometheus*	Antić & Reip, 2020	1						Holotype	Georgia
019312	*Leucogeorgia prometheus*	Antić & Reip, 2020		5				10	Paratypes	Georgia
019313	*Leucogeorgia prometheus*	Antić & Reip, 2020	6						Paratypes	Georgia
019315	*Leucogeorgia turbanovi*	Antić & Reip, 2020	1	1					Paratypes	Russia
0193616	*Leucogeorgia golovatchi*	Antić & Reip, 2020	1						Paratype	Georgia
019322	*Leucogeorgia lobata*	Antić & Reip, 2020	1						Paratype	Georgia
019540	*Leptoiulus meskhii*	Evsyukov, Golovatch, Reip & VandenSpiegel, 2020	6	6 (7 in publ.)					Paratypes	Azerbaijan
016993	*Pogonosternum montanum*	Decker, 2017	1						Paratype	Australia
017113	*Pogonosternum jeekeli*	Decker, 2017	1						Paratype	Australia
014751	*Guipuzcosoma karinae*	Antić & Mauriès, 2022	1						Holotype	Spain
014751	*Guipuzcosoma karinae*	Antić & Mauriès, 2022						1	Paratype	Spain
014744	*Guipuzcosoma karinae*	Antić & Mauriès, 2022		1					Paratype	Spain
014749	*Guipuzcosoma karinae*	Antić & Mauriès, 2022		1			3		Paratypes	Spain
014771	*Guipuzcosoma karinae*	Antić & Mauriès, 2022					3		Paratype	Spain
014792	*Guipuzcosoma reipi*	Antić & Mauriès, 2022	1						Holotype	Spain
014792	*Guipuzcosoma reipi*	Antić & Mauriès, 2022	1						Paratype	Spain

014793	*Guipuzcosoma reipi*	Antić & Mauriès, 2022		1					Paratype	Spain
014789	*Guipuzcosoma reipi*	Antić & Mauriès, 2022	1						Paratype	Spain
014763	*Guipuzcosoma reipi*	Antić & Mauriès, 2022	1	1			2		Paratypes	Spain
020208	*Leucogeorgia redivivoides*	Antić & Reip, 2020	1	1					Paratypes	Georgia
015007	*Cylindroiulus karinhansorum*	Read, 2022	1						Holotype	Spain
015007	*Cylindroiulus karinhansorum*	Read, 2022	1	26 ♀/juv.	6				Paratypes	Spain
014996	*Cylindroiulus karinhansorum*	Read, 2022	1	5	1				Paratypes	Spain
014998	*Cylindroiulus karinhansorum*	Read, 2022		1					Paratype	Spain
015004	*Cylindroiulus karinhansorum*	Read, 2022	2	1					Paratypes	Spain
015005	*Cylindroiulus karinhansorum*	Read, 2022		6	1				Paratypes	Spain
014831	*Cylindroiulus elosegiorum*	Read, 2022	5	11	1				Paratypes	Spain
014771	*Cylindroiulus elosegiorum*	Read, 2022	2	18					Paratypes	Spain
014759	*Cylindroiulus elosegiorum*	Read, 2022	7	12					Paratypes	Spain
014826	*Cylindroiulus elosegiorum*	Read, 2022		1					Paratype	Spain
014787	*Cylindroiulus elosegiorum*	Read, 2022	2	10	2				Paratypes	Spain
014820	*Cylindroiulus elosegiorum*	Read, 2022	1	2					Paratypes	Spain
014781	*Cylindroiulus elosegiorum*	Read, 2022		11	3				Paratypes	Spain
	Chilopoda									
14744	*Lithobius crassipesoides*	Voigtländer, Iorio, Spelda & Decker, 2017	1						Holotype	Spain
14744	*Lithobius crassipesoides*	Voigtländer, Iorio, Spelda & Decker, 2017		1					Paratype	Spain
16739	*Lithobius crassipesoides*	Voigtländer, Iorio, Spelda & Decker, 2017	1						Paratype	Spain
14764	*Lithobius crassipesoides*	Voigtländer, Iorio, Spelda & Decker, 2017	1						Paratype	Spain
14752	*Lithobius crassipesoides*	Voigtländer, Iorio, Spelda & Decker, 2017		1					Paratype	Spain
	Pauropoda									
F108/BB/PA4/CIW	*Eopauropus balticus*	Scheller, 2001 In: SCHELLER & WUNDERLICH, 2001		1					Holotype	Baltic Amber

6 Valuable parts of the SMNG Myriapod Collection

The SMNG Myriapod Collection houses two historically valuable parts, the collection of Prof. Dr Paul Buchner and of Dr Karl Wilhelm Verhoeff:

The collection of **Prof. Dr Paul Buchner** contains 51 diplopod and 35 chilopod species with over 1,000 individuals from Ischia, Italy (BUCHNER 1951), and is particularly worth mentioning due to the work of the grandmaster of German myriapodology, **Dr Karl Wilhelm Verhoeff**. In addition, there is a collection by Verhoeff himself, which the Erfurt Museum purchased in 1943 and which came to our museum in 1974. It contains 43 diplopod and 36 chilopod species (approx. 500 individuals) from various areas of Central Europe. Unfortunately, the specimens are only provided with insufficient local information and are undated. Both collections are, however, of great interest for the special field due to Verhoeff's determinations and can contribute to the understanding of some of his species' concepts.

The most important and valuable part of the collection, however, are the existing types that have been handed over to the SMNG collection by the (co-)authors, especially in the last 10 years. Table 1 lists the types and types series of Diplopoda, Chilopoda and Pauropoda. Altogether for Diplopoda 5 holotypes and 23 paratypes, paratypes series and topotypes resp. are registered belonging to the families Schizopetalidae, Julidae, Arthrosphaeridae, Glomeridae, Trichopolydesmidae, Macrosternodesmidae, Anthroleucosomatidae, Paradoxosomatidae, and Guipuzcosomatidae. For the chilopods, only 1 type and the associated type series are represented in the SMNG collection as well as only 1 type of the Pauropoda exists, the oldest fossil of a pauropod known so far (SCHELLER & WUNDERLICH 2001).

The type lists in alphabetic order provide information to the category of type, citation of the original description, sex and number of specimens as well as the country of origin.

7 Importance of the myriapod collection

The Görlitz myriapod collection size with more than 100,000 determined specimens and several thousand undetermined individuals ranges among the largest myriapod collection worldwide (compare with SIERWALD & REFT 2004). In Germany as well as Central Europe it is the collection with the largest quantity of material collected in the post-war period.

The whole collection catalogue is digitized and available online in the ecological database "Edaphobase" (www.edaphobase.org; BURKHARDT et al. 2014). The unique aspect here is that in addition to the standard information of the record, many other metadata were recorded in more than 170 information fields, in many cases with standardized vocabulary or chosen from national or international standardized selection lists, covering the thematic areas of determination, biology, DNA-sequences, morphology, preparation, quantity, soil parameters, locality, climate, vegetation, weather, sampling, extraction, permissions, and source reference. Much of this information was only made possible by extensive documentation of the circumstances of the record, the fact that in many projects soil samples were also examined by laboratory techniques, metadata was entered in projects, locations were georeferenced and some information is derived from other data or the coordinates. This makes this data perfect for statistical, ecological and distributional analysis.

Specimens of 20 species and 14 types were digitised with a series of microscope photographs with different focal planes and provided online in the Virtual Microscope Slide Collection VIRMISCO (www.virmisco.org; DECKER et al. 2018), including the vulvaes of some Central European julid species.

The SMNG collection contains the vouchers used for generating genomic data for 19 chilopod and 26 diplopod species obtained during the project Metagenomic monitoring of soil communities (MetaInvert) of the LOEWE Centre for translational biodiversity genomics during 2019 to 2021 (COLLINS et al., in prep). It is therefore currently the largest collection of myriapod genome vouchers worldwide.

The Görlitz myriapod museum collection so far was an important basis for many regional faunal lists in Germany (DECKER & HANNIG 2011, HAUSER & VOIGTLÄNDER 2009, REIP & VOIGTLÄNDER 2009, SPELDA 1999a, VOIGTLÄNDER 2003c, 2009, 2016, VOIGTLÄNDER et al. 2018b) or abroad (IORIO & VOIGTLÄNDER 2019, REIP & VOIGTLÄNDER in prep., VOIGTLÄNDER & REIP 2013, VOIGTLÄNDER et al. 1994, 1997, 2022,), taxonomic revisions (BONATO et al. 2012, HAUSER 2004a, b, VOIGTLÄNDER 1994, VOIGTLÄNDER et al. 2017), investigations of the bionomy of several species (VOIGTLÄNDER 1987b, 1996b, 2000, 2006, VOIGTLÄNDER & HAASE 2017), autecological studies always with a focus on the habitat preferences of the species (DUNGER & VOIGTLÄNDER 2009, HAUSER & VOIGTLÄNDER 2019, VOIGTLÄNDER 2005, 2011, VOIGTLÄNDER & DÜKER 2001) and national or regional Red Lists (DECKER et al. 2016, LINDNER et al. 2020, REIP et al. 2016, SPELDA 1999b, 2003, VOIGTLÄNDER 2004a, b, VOIGTLÄNDER et al. 2020). Last but not least, the knowledge of systematics and taxonomy of the individual taxa acquired through the collection also forms the basis for the compilation of identification literature (HAUSER & VOIGTLÄNDER 2009a, 2019, IORIO & VOIGTLÄNDER 2019, PETER & VOIGTLÄNDER 2022, VOIGTLÄNDER 1992, VOIGTLÄNDER & PETER 2022, VOIGTLÄNDER & SPELDA 2019).

Acknowledgement

Our greatest thanks go to the late Prof. Dr Wolfram Dunger, founder of soil zoology at the former State Museum of Natural History Görlitz and originator of the museum's collections, with the greatest respect for his comprehensive and far-sighted work. We are deeply indebted to all named and unnamed collectors for their work, together with the wish for continued professional cooperation. The collection would not be what it is today without the tireless and meticulous work of data preparation and recording, labelling and maintenance by our technical assistants, Heiderose Stöhr (†) and Julia Noe. Special thanks are also addressed to Norman Lindner and Ulrich Burkhardt for valuable advice on earlier stages of the manuscript, Sebastian Rick for providing data and Jacqueline Gitschmann for creating Figure 3. She also provided the photographs in the text and for the journal's cover. Per Djursvoll and Jörg Wunderlich kindly provided literature on the fossil pauropod.

References

AKKARI, N.; VOIGTLÄNDER, K. (2007): *Ommatoiulus malleatus* n. sp., a new Tunisian millipede, with notes on the *punicus* species group of *Ommatoiulus* (Diplopoda, Julidae). – Zootaxa 1400: 59-68. doi: 10.11646/zootaxa.1400.1.4

AKKARI, N.; ENGHOFF, H. (2012): Review of the genus *Ommatoiulus* in Andalusia, Spain (Diplopoda: Julida) with description of ten new species and notes on a remarkable gonopod structure, the fovea. – Zootaxa 3538: 1-53. doi: 10.11646/zootaxa.3538.1.1

AKKARIN, N.; ENGHOFF, H. (2017): Revision of the genus *Ommatoiulus* Latzel, 1884 (Julida, Diplopoda) in Portugal, with description of six new species. – European Journal of Taxonomy 295: 1-42. doi: 10.5852/ejt.2017.295.

ALBERTI, S. J. M. M. (2017): Why Collect Science? – Journal of Conservation and Museum Studies 15 (1), Art. No.: 1. doi: 10.5334/jcms.150.

ANTIĆ, D. Ž.; REIP, H. S.; DRAŽINA, T.; RAĐA, T.; MAKAROV, S. E. (2014): Three new monotypic genera of Trichopolydesmidae from Croatia, Balkan Peninsula (Diplopoda, Polydesmida). – Zootaxa 3884 (2): 101-121 doi: 10.11646/zootaxa.3884.2.1

ANTIĆ, D. Ž; MAKAROV, S. E. (2016). The Caucasus as a major hotspot of biodiversity: Evidence from the millipede family Anthroleucosomatidae (Diplopoda, Chordeumatida). – Zootaxa. 4211 (1): 1-205. doi: 10.11646/zootaxa.4211.1.1

ANTIĆ, D. Ž.; REIP, H. S. (2020). The millipede genus *Leucogeorgia* Verhoeff, 1930 in the Caucasus, with descriptions of eleven new species, erection of a new monotypic genus and notes on the tribe Leucogeorgiini (Diplopoda: Julida: Julidae). – European Journal of Taxonomy 713: 1-106. doi: 10.5852/ejt.2020.713

ANTIĆ, D. Ž; MAURIÈS, J.-P. (2022): Two new species of the previously monospecific genus *Guipuzcosoma* Vicente & Mauriès, 1980 from Spain, with establishment of Guipuzcosomatidae fam. nov. (Diplopoda: Chordeumatida). – Zootaxa 5093 (2): 142-168. doi: 10.11646/zootaxa.5093.2.2

BALKENHOL, B.; BRUNK, I.; VOGEL, J.; VOIGTLÄNDER, K.; XYLANDER, W. E. R. (2006): Sukzession der Staphyliniden- und Chilopoden-Coenosen einer Roteichen-Chronosequenz im Vergleich zu Offenlandflächen und Traubeneichenwäldern. – In: BRÖRING, U.; WIEGLEB, G. (eds): Biodiversität und Sukzession in der Niederlausitzer Bergbaufolgelandschaft. Books on Demand GmbH, Norderstedt: 45-56.

BONATO, L.; VOIGTLÄNDER, K.; MINELLI, A. (2012): *Algerophilus*, a neglected lineage of Western Mediterranean centipedes (Chilopoda: Geophilomorpha). – Zootaxa 3235: 23-34. doi: 10.11646/zootaxa.3235.1.2

BUCHNER, G. (1951): Die Diplopoden-, Chilopoden- und Land-Isopodenfauna der Inseln Ischia und Capri und ihre tiergeographischen Beziehungen. – Zoologische Jahrbücher - Abteilung für Systematik, Ökologie und Geographie der Tiere 80: 451-481.

BURKHARDT, U.; RUSSEL, D. J.; DECKER, P.; DÖHLER, M.; HÖFER, H.; LESCH, S.; RICK, S.; RÖMBKE, J.; TROG, C.; VORWALD, J.; WURST, E.; XYLANDER, W. E. R. (2014): The Edaphobase Project of GBIF-Germany – A new online soil-zoological data warehouse. – Applied Soil Ecology 83: 3-12. doi: 10.1016/j.apsoil.2014.03.021

CERÍACO, L. M.P.; GUTIÉRREZ, E. E.; DUBOIS, A. (2016): Photography-based taxonomy is inadequate, unnecessary, and potentially harmful for biological sciences. – Zootaxa 4196 (3): 435-445 doi: 10.11646/zootaxa.4196.3.9.

COLLINS, G.; SCHNEIDER, C.; BOŠTJANČIĆ, L. L.; BURKHARDT, U.; CHRISTIAN, A.; DECKER, P.; EBERSBERGER, I.; HOHBERG, K.; LECOMPTE, O.; MÜLBAIER, H.; ROMAHN, J.; RÖMBKE, J.; RUTZ, C.; SCHMELZ, R.; THEISSINGER, K.; LEHMITZ, R.; PFENNINGER, M.; BÁLINT, M. (in prep.): Ecology to Genomes and back: Ecological influences on soil invertebrate genomes depend on the taxa.

DAVIS, C. L.; GURALNICK, R. P.; ZIPKIN, E. F. (2022): Challenges and opportunities for using natural history collections to estimate insect population trends. – Journal of Animal Ecology 1-13. doi: 10.1111/1365-2656.13763

DAUBER, J.; ALLSPACH, A.; FRISCH, J.; PURTAUF, T.; VOIGTLÄNDER, K.; WOLTERS, V. (2005): Local vs. landscape controls on diversity: a test using surface dwelling soil macroinvertebrates of differing mobility. – Global Ecology and Biogeography 14: 213-221. doi: 10.1111/j.1466-822X.2005.00150.x

DECKER, P.; HANNIG, K. (2008): Erstnachweis von *Glomeris pustulata* Latreille, 1804 (Diplopoda: Glomerida) für Nordrhein-Westfalen. – Schubartiana 3: 53-56

DECKER, P.; HANNIG, K (2010): *Nanogona polydesmoides* (Leach, 1815) – New for the German fauna. - Bulletin of the British Myriapod and Isopod Group 24: 34-35.

DECKER, P.; HANNIG, K (2011): Checkliste Hundert- und Tausendfüßer (Myriapoda: Chilopoda, Diplopoda) Nordrhein-Westfalens. – Abhandlungen aus dem Westfälischen Museum für Naturkunde 1: 3-48.

DECKER, P.; HANNIG, K; VOIGTLÄNDER, K.; WESENER, T. (2015): Nachtrag zur Checkliste der Hundert- und Tausendfüßer (Myriapoda: Chilopoda, Diplopoda) und Artenverzeichnis der Zwerg- und Wenigfüßer (Symphyla, Pauropoda) Nordrhein-Westfalens. – Abhandlungen aus dem Westfälischen Museum für Naturkunde 80: 5-22.

DECKER, P.; VOIGTLÄNDER, K.; SPELDA, J.; REIP, H. S. (2016): Rote Liste und Gesamtartenliste der gefährdeten Hundertfüßer (Myriapoda: Chilopoda) Deutschlands. – In: GRUTTKE, H.; BINOT-HAFKE, M.; BALZER, S.; HAUPT, H.; HOFBAUER, N.; LUDWIG, G. (eds): Rote Liste gefährdeter Tiere, Pflanzen und Pilze Deutschlands, Band 4: Wirbellose Tiere (Teil 2). – Naturschutz und Biologische Vielfalt: 327-346.

DECKER, P.; MESIBOV, R.; VOIGTLÄNDER, K.; Xylander, W. E. R. (2017): Revision of the Australian millipede genus *Pogonosternum* Jeekel, 1965, with descriptions of two new species (Diplopoda, Polydesmida, Paradoxosomatidae). – European Journal of Taxonomy 259: 1-34. doi: 10.5852/ejt.2017.259

DECKER, P.; CHRISTIAN, A.; XYLANDER, W.E.R. (2018): VIRMISCO – The Virtual Microscope Slide Collection. – ZooKeys 741: 271-282. doi: 10.3897/zookeys.741.22284

DELAMARE- DEBOUTTEVILLE, C. (1951): Microfauna du sol des pays temperés et tropicaux. – Vie Milieu, Suppl. I: 360 pp.

DIEULIIS, D. (2015): The Role of Scientific Collections in Scientific Preparedness. – Emerging Infectious Diseases 21 (8): e150423. doi: 10.3201/eid2108.150423

DJURSVOLL, P. (2019): Two new species of *Polydesmus* Latreille, 1802/1803 from northern Spain with reinstatements of two species, and a key to the Iberian *Polydesmus* species (Diplopoda, Polydesmida, Polydesmidae) – ZooKeys 888: 51-65. doi: 10.3897/zookeys.888.37816

DUNGER, W. (1958): Über die Zersetzung der Laubstreu durch die Boden-Makrofauna im Auenwald. – Zoologische Jahrbücher, Abteilung für Systematik, Ökologie und Geographie der Tiere 86: 139-180.

DUNGER, W. (1965): Bodenbiologische Untersuchungen der Rekultivierung der Halden des Tagebaues Berzdorf. – Abhandlungen und Berichte des Naturkundemuseums Görlitz 40 (1): 9-10.

DUNGER, W. (1966): Myriopoden-Beobachtungen in der Oberlausitz. – Abhandlungen und Berichte des Naturkundemuseums Görlitz 41 (15): 39-44.

DUNGER, W. (1967a): Die Entwicklung der Makro- und Megafauna in rekultivierten Haldenböden. – In: GRAFF, O.; SATCHELL, J.E. Progress in Soil Biology. – Vieweg, Braunschweig und Amsterdam: 340-352.

DUNGER, W. (1967b): Studien an der Myriopodenfauna von Sachsen. – II. Entomologické Symposium Opava, Slezské Muzeum Opava 18: 105-113.

DUNGER, W. (1968): Die Entwicklung der Bodenfauna auf rekultivierten Kippen und Halden des Braunkohlentagebaues. Ein Beitrag zur pedozoologischen Standortsdiagnose. – Abhandlungen und Berichte des Naturkundemuseums Görlitz 43 (2): 1-256.

DUNGER, W.; DUNGER, I.; ENGELMANN, H.-D.; SCHNEIDER, R. (1972): Untersuchungen zur Langzeitwirkung von Industrie-Emissionen auf Böden, Vegetation und Bodenfauna des Neißetales bei Ostritz/ Oberlausitz. – Abhandlungen und Berichte des Naturkundemuseums Görlitz 47 (3): 1-40.

DUNGER, W. (1978): Aufgaben der biologischen Sammlungen. – In: Institut für Museumswesen der DDR Berlin (ed.): Museale Sammlungen, Probleme und Aufgaben in Theorie und Praxis. – Schriftenreihe 12: 146-177.

DUNGER, W.; STEINMETZGER, K. (1981): Ökologische Untersuchungen an Diplopoden einer Rasen-Wald-Catena im Thüringer Kalkgebiet. – Zoologische Jahrbücher für Ökologie und Geographie der Tiere, Abteilung Systematik 108: 519-553.

DUNGER, W. (1986): Die Sammlungen des Staatlichen Museums für Naturkunde Görlitz – Forschungsstelle. Anläßlich des 175. Jahrestages der Gründung der Naturforschenden Gesellschaft zu Görlitz. – Abhandlungen und Berichte des Naturkundemuseums Görlitz, Supplement zu Band 59: 1-72.

DUNGER, W. (1988): Aufgaben biologischer Museen. – Rudolstädter naturhistorische Schriften 1: 20-25.

DUNGER, W.; VOIGTLÄNDER, K. (1990): Succession of Myriapoda in primary colonization of reclaimed land. – In: MINELLI, A. (ed.): Proceedings of the 7th International Congress of Myriapodology, Vittorio Veneto 1987, Brill Leiden: 141-146.

DUNGER, W.; VOIGTLÄNDER, K.; SCHULZ, H.-J.; SCHWALBE, T.; CHRISTIAN, A. (1992): Charakterisierung ausgewählter Bodentiergemeinschaften im Stadtgebiet Leipzig. – Forschungsbericht Projekt ÖKOR 1992, Bibliothek des Museums für Naturkunde Görlitz.

DUNGER, W. (1998): Ergebnisse langjähriger Untersuchungen zur faunistischen Besiedlung von Kippböden. – In: PFLUG, W. (ed.): Braunkohlentagebau und Rekultivierung. Landschaftsökologie – Folgenutzung – Naturschutz. – Springer, Berlin, 625-634.

DUNGER, W.; WANNER, M. (with the collaboration of HAUSER, H.; HOHBERG, K.; SCHULZ, H.-J.; SCHWALBE, T.; SEIFERT, B.; VOGEL, J.; VOIGTLÄNDER, K.; ZIMDARS, B.; ZULKA, K. P.) (2001): Development of soil fauna at mine sites during 46 years after afforestation. – Pedobiologia 45: 243-271. doi: 10.1078/0031-4056-00083

DUNGER, W.; VOIGTLÄNDER, K. (2005): Assessment of biological soil quality on wooded mine sites. – Geoderma 129: 32-44.

DUNGER, W.; VOIGTLÄNDER, K. (2009): Soil fauna (Lumbricidae, Collembola, Diplopoda and Chilopoda) as indicators of soil ecosubsystem development in post-mining sites of Eastern Germany – a review. – Soil Organisms 81 (1): 1-51.

ECKERT, R.; BECKER, J. (1995). Myriapoden (Tausendfüßer) aus mitteldeutschen Höhlen (Thüringen, Harz, Kyffhäuser, Zittauer Gebirge). – Höhlenforschung in Thüringen 9: 8-21.

EVSYUKOV, A. P.; GOLOVATCH, S. I.; REIP, H. S.; VANDENSPIEGEL, D. (2020): The millipede tribe Leptoiulini in the Caucasus, with notes on its generic classification (Diplopoda: Julida: Julidae). – Zootaxa 4778 (2): 237-280. doi: 10.11646/zootaxa.4778.2.2

FRANZ, H. (1950): Bodenzoologie als Grundlage der Bodenpflege. – Berlin: 316 pp.

GHILAROV, M. S. (1949): Die Besonderheiten des Bodens als Lebensraum und seine Bedeutung für die Evolution der Insekten. – Moskau, Leningrad: 279 pp. [russ.]

GLÜCK, E.; SPELDA, J. (1996): Sukzession der Destruentencoenosen von Sturmwurfflächen. – Veröffentlichungen Projekt "Angewandte Ökologie" 16: 367-377.

GOLOVATCH, S. I. (1989): Diplopoda of the Caucasus, 2. Glomeridae, with contributions to the fauna of Turkey. – Senckenbergiana biologica 69 (1988) (4/6): 421-440.

HAASE, H., BRUNK, I., VOIGTLÄNDER, K.; BALKENHOL, B. (2019): Invasion des Neophyten *Spiraea* sp. und Sukzession artenreicher Graslandflächen: Auswirkungen auf die Artengemeinschaften von Spinnen (Araneae), Laufkäfern (Carabidae) sowie Doppel- und Hundertfüßers (Diplopoda, Chilopoda). – Berichte der Naturforschenden Gesellschaft der Oberlausitz 27: 5-42.

HAMMERSCHMIDT, J. (2018): 200 Jahre Naturforschende Gesellschaft und Museum für Naturkunde Görlitz. – Eigenverlag Senckenberg Museum für Naturkunde Görlitz; Görlitz, 2nd edited edition: 147 pp.

HAUSER, H. (2004a): Zur Taxonomie and Systematik von *Mastigona bosniensis* (Verhoeff, 1897) and *Mastigona vihorlatica* (Attems, 1899) (Diplopoda, Chordeumatida, Mastigophorophyllidae). – Entomologische Nachrichten und Berichte 48 (3-4): 215-218.

HAUSER, H. (2004b): Untersuchungen zur Systematik und Biogeografie der *Craspedosoma rawlinsii* Leach-Gruppe (Diplopoda: Chordeumatida: Craspedosomatidae). – Entomologische Nachrichten und Berichte/Beiheft 9: 1-32.

HAUSER, H.; VOIGTLÄNDER, K. (2009): Zoogeography of the millipedes (Diplopoda) of eastern Germany. – In: XYLANDER, W. E. R.; VOIGTLÄNDER, K. (eds): Myriapoda and Onychophora of the World – Diversity, Biology and Importance. Proceedings of the 14th International Congress of Myriapodology, Görlitz. – Soil Organisms 81 (3): 617-633.

HAUSER, H.; VOIGTLÄNDER, K. (2019): Doppelfüßer (Diplopoda) Deutschlands. Verhalten Ökologie Verbreitung Lebendbestimmung. – DJN, Deutscher Jugendbund für Naturbeobachtung, Göttingen: 148 pp.

HENSEL, J. (1988): Ökofaunistische Untersuchungen an ausgewählten Arthropodengruppen in Gera unter Berücksichtigung des A-E-Gradienten. – Doctoral Thesis, Universität Leipzig: 138 pp.

IORIO, É.; VOIGTLÄNDER, K. (2019): The Lithobiomorpha of the continental Iberian Peninsula (Chilopoda). New data, description of a new species of the genus *Lithobius* (s. str.), checklist and identification key. – Mémoires de la Société Linnéenne de Bordeaux 18: 1-98.

KENTER, B.; KOPF, A.; SPELDA, J.; WERTH, S.; WILHELM, P.; BELLMANN, H.; FUNKE, W. (1997): Sukzessionsforschung auf Windwurfflächen – Untersuchungen an Wirbellosen und Wirbeltiere. – Veröffentlichungen Projekt "Angewandte Ökologie" 22: 163-174.

KÜHNELT, W. (1950): Bodenbiologie mit besonderer Berücksichtigung der Tierwelt. – Wien: 368 pp.

LINDNER, E. N., VOIGTLÄNDER, K., DECKER, P. (2020): Rote Listen Sachsen-Anhalt. 22. Hundertfüßer (Chilopoda). – Berichte des Landesamtes für Umweltschutz Sachsen-Anhalt, Heft 1 / 2020: 419-424.

MIKHALJOVA, E. V.; GOLOVATCH, S. I. (2001). A review of the millipede fauna of Siberia (Diplopoda). – Arthropoda Selecta 9 (2): 103-118.

MIKHALJOVA, E. V.; NEFEDIEV, P. S.; SAKHNEVICH, M. B.; DYACHKOV, Y. V. (2014): Review of the millipede genus *Sibiriulus* Gulička, 1972, with descriptions of three new species from Altai, Siberia, Russia (Diplopoda, Julida, Julidae). – Zootaxa 3866 (1): 30-52. doi: 10.11646/zootaxa.3866.1.2

PETER, H. U. (1984). Über den Einfluß von Luftverunreinigungen auf Ökosysteme. IV. Isopoda, Diplopoda, Chilopoda, Collembola und Auchenorrhyncha aus Bodenfallenfängen in der Umgebung eines Düngemittelwerkes. – Wissenschaftliche Zeitschrift der Friedrich Schiller Universität Jena, Naturwissenschaftliche Reihe 33 (3): 291-307.

PETER, H.-U.; ROTH, S. (1996): Beitrag zur Kenntnis der Arthropodenfauna der Kiefernforste im NSG "Uhlstädter Heide" bei Rudolstadt/Thüringen. 1. Das Arteninventar der Untersuchungsflächen. – Beiträge zur Ökologie 1 (1): 83-110.

PETER, H.-U.; VOIGTLÄNDER, K. (2022): Myriapoda, Tausendfüßer 2: Diplopoda Doppelfüßer. – In: KÖHLER, G. (ed.): Müller/Bährmann. Bestimmung wirbelloser Tiere. Bildtafeln für zoologische Bestimmungsübungen und Exkursionen. – Springer Spectrum, 8. edited edition: 62-63.

READ, H. J. (2022): The millipede genus *Cylindroiulus* Verhoeff, 1894 (Diplopoda: Julida; Julidae) in Spain: recent records and description of three new species from the Basque country, Navarra, Andalucía and Cataluña. – Graellsia 78 (1): 1-40. doi: 10.3989/graellsia.2022.v78.323

REIP, H. S.; VOIGTLÄNDER, K. (2009): Diplopoda and Chilopoda of Thuringia, Germany. – In: XYLANDER, W. E. R.; VOIGTLÄNDER, K. (eds): Myriapoda and Onychophora of the World – Diversity, Biology and Importance. Proceedings of the 14th International Congress of Myriapodology, Görlitz. – Soil Organisms 81 (3): 635-645.

REIP, H. S., SPELDA, J., VOIGTLÄNDER, K., DECKER, P.; LINDNER E. N. (2016): Rote Liste und Gesamtartenliste der Doppelfüßer (Myriapoda: Diplopoda) Deutschlands. – In: GRUTTKE, H., BINOT-HAFKE, M., BALZER, S., HAUPT, H., HOFBAUER, N., LUDWIG, G., MATZKE-HAJEK, G.; RIES, M. (eds): Rote Liste gefährdeter Tiere, Pflanzen und Pilze Deutschlands. Band 4: Wirbellose Tiere (Teil 2). – Naturschutz und Biologische Vielfalt 70 (4): 301-324.

REIP, H. S.; VOIGTLÄNDER, K. (2023 in prep.): Millipedes (Diplopoda) of the Euskal Herria / Basque Country in Northern España / Spain. – Results of an international field trip in 2009. – Schubartiana 11.

SCHELLER, U.; WUNDERLICH, J. (2001): First description of a fossil pauropod, *Eopauropus balticus* n. gen. n. sp. (Pauropoda: Pauropodidae), in Baltic amber. – Mitteilungen aus dem Geologisch Palaeontologischen Institut der Universität Hamburg 85: 221-227.

SIERWALD, P.; REFT, A. J. (2004): The millipede collections of the world. – Fieldiana, Zoology 103 (1532): 1-100.

SPELDA, J. (1996): Die Hundert- und Tausendfüßerfauna von Wacholderheiden im Landkreis Calw und ihre Reaktion auf unterschiedliche Pflegemaßnahmen (Chilopoda, Diplopoda). – Beihefte zu den Veröffentlichungen für Naturschutz und Landschaftspflege in Baden-Württemberg 88: 289-320.

SPELDA, J. (1999a): 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). – Doctoral thesis, Universität Ulm: 541 pp.

SPELDA, J. (1999b): Provisorische Rote Liste der in Baden-Württemberg gefährdeten Hundertund Tausendfüßer (Myriapoda: Chilopoda, Diplopoda). Stand: August 1997. – In: KÖPPEL, C., RENNWALD, E.; HIRNEISEN, N. (eds): Rote Listen auf CD-ROM.

SPELDA J. (2003): Rote Liste gefährdeter Hundert- und Tausendfüßer (Myriapoda: Chilopoda, Diplopoda) Bayerns. – In: VOITH, J. (ed.): Rote Liste gefährdeter Tiere Bayerns. - Augsburg (Landesamt für Umweltschutz). – Schriftenreihe Bayerisches Landesamt für Umweltschutz 166: 339-342.

STEINMETZGER, K. (1982): Die Diplopoden des Waldgebietes Hakel im nordöstlichen Harzvorland der DDR. – Hercynia N.F. 19 (2): 197-205.

STOEV, P. E.; ENGHOFF, H. (2003): Systematic, phylogeny and biogeography of genus *Balkanopetalum* Verhoeff, 1926 (Diplopoda: Callipodida: Schizopetalidae). – Zootaxa 272: 1-26. doi: 10.11646/zootaxa.272.1.1

STRASSER, K. (1959): *Verhoeffodesmus* n.g., ein Höhlendiplopode aus Istrien (Polydesmoidea). – Acta Carsologica, Ljubjana 2: 97-106.

TOSCHKI, A.; BURKHARDT, U.; HAASE, H.; HÖFER, H.; JÄNSCH, S.; OELLERS, J.; RÖMBKE, J.; ROß-NICKOLL, M.; SALAMON, J.-A.; M. SCHMELZ, R.; SCHOLZ-STARKE, B.; RUSSELL, D. J. (2021): Die Edaphobase-Länderstudien: – Synökologische Untersuchungen von Bodenorganismen in einem Biotop- und Standortgradienten in Deutschland 2014-2018. – Peckiana 14: 1-367.

VOIGTLÄNDER, K. (1983): Chilopoden aus Fallenfängen im Waldgebiet Hakel, nordöstliches Harzvorland der DDR. – Hercynia, N.F. 20 (1): 117-123.

VOIGTLÄNDER, K. (1987a): Myriapoden als Nahrung des Steinkauzes, *Athene noctua* (Scop.) – Methoden und Ergebnisse von Gewöll-Untersuchungen. – Abhandlungen und Berichte des Naturkundemuseums Görlitz 60 (12): 47-52.

VOIGTLÄNDER, K. (1987b): Untersuchungen zur Bionomie von *Enantiulus nanus* (Latzel, 1884) und *Allajulus occultus* C. L. Koch, 1847 (Diplopoda, Julidae). – Abhandlungen und Berichte des Naturkundemuseums Görlitz 60 (10): 1-116.

VOIGTLÄNDER, K. (1992): Myriapoda. – In: SENGLAUB, K.; KLAUSNITZER, B.; HANNEMANN, H.-J. (ed.): Stresemann – Exkursionsfauna von Deutschland. Bd. 1, Wirbellose (ohne Insekten). – 8. Aufl., Volk und Wissen Berlin: 544-565.

VOIGTLÄNDER, K.; DUNGER, W. (1992): Long-term Observations of the Effects of Increasing Dry Pollution on the Myriapod Fauna of the Neiße Valley (East Germany). – Berichte des Naturwissenschaftlich-Medizinischen Vereins in Innsbruck, Supplement 10: 251-256.

VOIGTLÄNDER, K., DUNGER, W.; SCHULZ, H.-J. (1993): Untersuchungen zu Langzeitwirkungen von Industrie-Immissionen auf die Bodenfauna im Neißetal bei Görlitz. – Mitteilungen der Deutschen Bodenkundlichen Gesellschaft 69: 115-118.

VOIGTLÄNDER, K. (1994): A contribution to our knowledge of the taxonomy and distribution of *Lithobius austriacus* Verhoeff, 1937 (Chilopoda, Lithobiidae) in Germany. – Abhandlungen und Berichte des Naturkundemuseums Görlitz 68 (1): 23-37.

VOIGTLÄNDER, K.; SPELDA, J.; ZULKA, K. P. (1994): Hundertfüßer (Chilopoda) aus dem weststeirischen Raum (Österreich). – Verhandlungen der Zoologisch-Botanischen Gesellschaft in Österreich 131: 163-184.

VOIGTLÄNDER, K. (1995): Diplopoden und Chilopoden in immissionsgeschädigten Kiefernforsten im Raum Bitterfeld. – Hercynia, N.F. 29: 269-289.

VOIGTLÄNDER, K. (1996a): Diplopoden und Chilopoden von Trockenstandorten im Hallenser Raum (Ostdeutschland). – Hercynia N.F. 30: 109-126.

VOIGTLÄNDER, K. (1996b): The life cycle of *Cylindroiulus latestriatus* (Curtis, 1845). – In: GEOFFROY, J.-J., MAURIÈS, J.-J.; NGUYEN DUY-JAQUEMIN, M. (eds): Acta Myriapodologica. – Mémoires du Muséum National d'Histoire Naturelle, Paris 169: 501-508.

VOIGTLÄNDER, K.; SPELDA, J.; ZULKA, K. P.; TADLER, A. (1997): Diplopoden und terrestrische Isopoden aus der Umgebung von Eckberg bei Gamlitz (Weststeiermark, Österreich). – Berichte des naturwissenschaftlich-medizinischen Vereins in Innsbruck 84: 307-314.

VOIGTLÄNDER, K. (1998): Hundertfüßer – Chilopoda. – In: HEINRICH, W.; MARSTSALLER, R., BÄHRMANN, R.; PERNER, J.; SCHÄLLER, G. (eds): Das Naturschutzgebiet " Leutratal" bei Jena. Struktur- und Sukzessiosforschung in Grasland-Ökosystemen. – Naturschutzreport 14: 151, 339.

VOIGTLÄNDER, K.; DUNGER, W. (1998): Centipedes of the nature reserve „Leutratal" near Jena (Thuringia, East Germany). – In: PIŽL, V.; TAJOVSKÝ, K. (eds): Soil Zoological Problems in Central Europe, České Budějovice: 255-265.

VOIGTLÄNDER, K. (1999): Untersuchungen zur Diplopoden- und Chilopodenfauna des Brockengebietes (Myriapoda: Diplopoda et Chilopoda). – Abhandlungen und Berichte für Naturkunde, Magdeburg 22: 27-38.

VOIGTLÄNDER, K.; HAUSER, H. (1999): Fortschritte in der Kenntnis der Diplopoden der Oberlausitz. – Berichte der Naturforschenden Gesellschaft der Oberlausitz 7/8: 105-117.

VOIGTLÄNDER, K. (2000): Vergleichende Untersuchungen zur Postembryonalentwicklung von *Lithobius*-Arten (Chilopoda, Lithobiidae). – Mitteilungen der Deutschen Gesellschaft für Allgemeine und Angewandte Entomologie 12: 535-540.

VOIGTLÄNDER, K., DÜKER, C. (2001): Distribution and species grouping of millipedes (Myriapoda, Diplopoda) in dry biotopes in Saxony-Anhalt/Eastern Germany. – European Journal of Soil Biology 37: 325-328. doi: 10.1016/S1164-5563(01)01104-9

VOIGTLÄNDER, K.; KOBEL-LAMPARSKI, A.; LAMPARSKI, F. (2001): Die Chilopodenfauna (Myriapoda) im Rebgelände des Kaiserstuhls – Einfluss verschiedener Bodenbearbeitungsverfahren. – Carolinea 59: 73-80, 3 figs., 1 plate.

VOIGTLÄNDER, K. (2002): Wir über uns – Die Abteilung Bodenzoologie stellt sich vor. – In: XYLANDER, W. E. R. (ed.): Bericht des Staatlichen Museums für Naturkunde Görlitz für die Jahre 1999-2001. – Abhandlungen und Berichte des Naturkundemuseums Görlitz 74 (1): 63-73.

VOIGTLÄNDER, K. (2003a): Doppelfüßer (Diplopoda). – In: SCHNITTER, P., TROST, M.; WALLASCHEK, M. (eds): Tierökologische Untersuchungen in gefährdeten Biotoptypen des Landes Sachsen-Anhalt. I. Zwergstrauchheiden, Trocken- und Halbtrockenrasen. – Entomologische Mitteilungen Sachsen-Anhalt, Sonderheft 2003: 25-26, 54, 70-71, 87-88, 107, 122-123, 195.

VOIGTLÄNDER, K. (2003b): Hundertfüßer (Chilopoda). – In: SCHNITTER, P., TROST, M.; WALLASCHEK, M. (eds): Tierökologische Untersuchungen in gefährdeten Biotoptypen des Landes Sachsen-Anhalt. I. Zwergstrauchheiden, Trocken- und Halbtrockenrasen. – Entomologische Mitteilungen Sachsen-Anhalt, Sonderheft 2003: 26-29, 54-55, 71, 88-89, 107-108, 123-124, 194-195.

VOIGTLÄNDER, K (2003c): Liste der Myriapoden Sachsen-Anhalts und des Kyffhäusers. I. Chilopoda. – Entomologische Nachrichten und Berichte 47 (3-4): 191-193.

VOIGTLÄNDER, K. (2004a): Rote Liste der Hundertfüßer (Chilopoda) Sachsen-Anhalts. – Berichte des Landesamtes für Umweltschutz Sachsen-Anhalt 39: 175-177.

VOIGTLÄNDER, K. (2004b): Rote Liste der Doppelfüßer (Diplopoda) des Landes Sachsen-Anhalts. – Berichte des Landesamtes für Umweltschutz Sachsen-Anhalt 39: 178-180.

VOIGTLÄNDER, K. (2005): Habitat Preferences of selected Central European Centipedes. – In: VOIGTLÄNDER, K. (ed.): Myriapoda in Europe. Habitats and Biodiversity. Contributions to the Colloquium of European Myriapodologists. – Peckiana 4: 163-179.

VOIGTLÄNDER, K. (2006): The life cycle of *Lithobius mutabilis* L. Koch, 1862 (Myriapoda: Chilopoda). – Bonner zoologische Beiträge (2007) 55 (1): 9-25.

VOIGTLÄNDER, K. (2007): Die Myriapoden (Diplopoda, Chilopoda) aus Fallenfängen im Höglwald/Bayern. – Schubartiana 2: 13-20.

VOIGTLÄNDER, K; BALKENHOL, B. (2006): Studies on millipede assemblages (Myriapoda, Diplopoda) as influenced by habitat qualities of afforested mine sites. — Norwegian Journal of Entomology 53 (2): 345-360.

VOIGTLÄNDER, K. (2008a): Tausendfüßer, Doppelfüßer (Diplopoda). – In: Landesamt für Umweltschutz Sachsen-Anhalt (ed.): Arten- und Biotopschutzprogramm Sachsen-Anhalt. Biologische Vielfalt und FFH-Management im Landschaftsraum Saale-Unstrut-Triasland. – Berichte des Landesamtes für Umweltschutz Sachsen-Anhalt, Sonderheft 1 / 2008: 217-220.

VOIGTLÄNDER, K. (2008b): Hundertfüßer (Chilopoda). – In: Landesamt für Umweltschutz Sachsen-Anhalt (ed.): Arten- und Biotopschutzprogramm Sachsen-Anhalt. Biologische Vielfalt und FFH-Management im Landschaftsraum Saale-Unstrut-Triasland. – Berichte des Landesamtes für Umweltschutz Sachsen-Anhalt, Sonderheft 1 / 2008: 220-223.

VOIGTLÄNDER, K. (2009): Liste der Myriapoda Sachsen-Anhalts und des Kyffhäusers. II. Diplopoda. – Entomologische Nachrichten und Berichte 53 (3-4): 189-194.

VOIGTLÄNDER, K. (2011): Preferences of common Central European millipedes for different biotope types (Myriapoda, Diplopoda) in Saxony-Anhalt (Germany). – In: MESIBOV, R.; SHORT, M. (eds): Proceedings of the 15th International Congress of Myriapodology, 18–22 July 2011, Brisbane, Australia. – International Journal of Myriapodology 6: 61-83. doi: 10.3897/ijm.6.2172

VOIGTLÄNDER, K.; REIP, H. S. (2013): Morphological, taxonomical and ecological contributions to the Fauna of Andalusia (Sierra de Grazalema and Los Alcornocales), Spain. – Graellsia, 69 (2): 217-241.

VOIGTLÄNDER, K.; DECKER, P. (2014): Diplopoda and Chilopoda from a special protection area in the Huy mountain range in Saxony-Anhalt, Germany. – Fragmenta Faunistica 57 (1): 27-40. doi: 10.3161/00159301FF2014.57.1.027

VOIGTLÄNDER, K. (2015): Die Doppel- und Hundertfüßer (Diplopoda & Chilopoda) der Colbitz-Letzlinger Heide. – In: Entomologen-Vereinigung Sachsen-Anhalt (ed.): Beiträge zur Naturausstattung der Colbitz- Letzlinger Heide. – Entomologische Mitteilungen Sachsen-Anhalt, Sonderheft 2015: 116-122.

VOIGTLÄNDER, K. (2016): Tausendfüßer (Myriapoda: Diplopoda, Chilopoda). – In: FRANK, D.; SCHNITTER, P. (eds): Pflanzen und Tiere in Sachsen-Anhalt. Ein Kompendium der Biodiversität. – Natur +Text, Rangsdorf: 592-598.

VOIGTLÄNDER, K.; DECKER, P.; BURKHARDT, U.; SPELDA, J. (2016): The present knowledge of the Symphyla and Pauropoda (Myriapoda) in Germany – An annotated checklist. – In: TAJOVSKÝ, K.; TUF, I. H.; SKUHRAVÁ, M. (eds): Proceedings of the 16th International Congress of Myriapodology, Olomouc, Czech Republic, 20–25 July 2014. – Acta Societatis Zoologicae Bohemicae 80 (1): 51-85.

VOIGTLÄNDER, K.; HAASE, H. (2017): The postembryonic development of *Telodeinopus aoutii* (Demange, 1971) (Diplopoda: Spirostreptida: Spirostreptidae). The 17th International Congress of Myriapodology, Abstract-Book: 64.

VOIGTLÄNDER, K.; IORIO, E.; DECKER, P.; SPELDA, J. (2017): The subgenus *Monotarsobius* in the Iberian Peninsula with a description of a new pseudo-cryptic species from Northern Spain revealed by an integrative revision of *Lithobius crassipes* L. Koch, 1862 (Chilopoda, Lithobiomorpha, Lithobiidae). – ZooKeys 681: 1-38. doi: 10.3897/zookeys.681.12942

VOIGTLÄNDER, K.; DECKER, P. (2018): Doppel- und Hundertfüßer (Diplopoda, Chilopoda). – In: SCHULDES, S.; MAMMEN, U. (eds): Die kennzeichnenden Tierarten des FFH-Gebietes „Huy nördlich Halberstadt". – Berichte des Landesamtes für Umweltschutz Sachsen-Anhalt, Sonderheft 1 (2018): 45-84.

VOIGTLÄNDER, K.; LINDNER, E. N.; REIP, H. S. (2018): Doppel - und Hundertfüßer der Insel Rügen mit Checkliste der Myriapoda Mecklenburg-Vorpommerns, Deutschland (Diplopoda, Chilopoda; Symphyla, Pauropoda). – Schubartiana 7: 23-37.

VOIGTLÄNDER, K.; BURKHARDT, B. (2019): In memoriam Wolfram Dunger 1929 –2019. The Dunger era at the State Museum of Natural History Görlitz. – Schubartiana 8: 13-24.

VOIGTLÄNDER, K.; SPELDA, J. (2019): Myriapoda – Vielfüßer, Tausendfüßer. – In: KLAUSNITZER B (ed.): Stresemann – Exkursionsfauna von Deutschland. Band 1: Wirbellose (ohne Insekten). – Springer, Berlin Heidelberg: 573-603.

VOIGTLÄNDER, K., LINDNER, E. N. & P. DECKER (2020): Rote Listen Sachsen-Anhalt. 21. Doppelfüßer (Diplopoda). – Berichte des Landesamtes für Umweltschutz Sachsen-Anhalt, Heft 1/2020: 411-417.

VOIGTLÄNDER. K. (2021): Chilopoda und Diplopoda (Hundert- und Doppelfüßer) des Südharzes (Sachsen-Anhalt. – In: Entomologen-Vereinigung Sachsen-Anhalt (ed.): Entomofaunistische Untersuchungen im westlichen Südharz (Sachsen-Anhalt). – Entomologen-Vereinigung Sachsen-Anhalt, Hecklingen: 64-95.

VOIGTLÄNDER, K.; PETER, H.-U. (2022): Myriapoda -Tausenfüßer 1: Übersicht sowie Chilopoda, Pauropoda und Symphyla. – In: KÖHLER, G. (ed.): Müller/Bährmann. Bestimmung wirbelloser Tiere. Bildtafeln für zoologische Bestimmungsübungen und Exkursionen. – Springer Spectrum, 8. edited edition: 59-61.

VOIGTLÄNDER, K.; REIP, H. S.; DECKER, P. (2022): Contributions to the centipede fauna of Tunisia with three first records for the country (Myriapoda: Chilopoda). – Schubartiana 10: 5-31.

WANNER, M.; DUNGER, W.; XYLANDER, W. E. R. (1999): Fünfzig Jahre Bodenzoologie – der Beitrag des Staatlichen Museums für Naturkunde Görlitz. – Informationen des Sächsischen Museumsbundes e. V. 18: 68-71.

WESENER, T.; SIERWALD, P. (2005): New giant pill-millipede species from the littoral forest of Madagascar (Diplopoda, Sphaerotheriida, Zoosphaerium). – Zootaxa 1097: 1-60. doi: 10.11646/zootaxa.1097.1.1