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An annotated checklist of the centipedes (Chilopoda) recorded in the Czech Republic

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Abstract. This annotated checklist of centipedes includes all the species reported occurring in the Czech Republic up to the end of 2015. Species that were not previously reported in the literature are also listed along with details of these records and the localities. In total, this checklist of centipedes known to occur in the Czech Republic includes 72 species.

Key words. Catalogue, Chilopoda, Geophilomorpha, Lithobiomorpha, Scolopendromorpha, Scutigeromorpha, Czech Republic.

INTRODUCTION

The history of the knowledge of the Czech centipedes goes back to the twenties of the 19th century. The first historical report on centipedes in the Czech Republic is mentioned by von Uechtritz (1820), who recorded *Scutigera coleoptrata* (Linnaeus, 1758) in the Nízký Jeseník Mountains. The first valuable contribution summarising the data for what is now the Czech Republic is in Latzel's (1880) "Die Myriopoden der Österreichisch-Ungarischen Monarchie" and two volumes of Haase's (1880, 1881) "Schlesiens Chilopoden" and Vališ's brief list of Moravian myriapods (Vališ 1904). All these researchers mainly collected material in Moravia, i.e. the eastern part of the Czech Republic.

After the establishment of Czechoslovakia, there was an increase in interest in national faunas, mainly due to Božena Folkmanová. She first produced a monograph on the fauna of centipedes recorded in Bohemia (western part of the Czech Republic), which was published in the late twenties (Folkman 1928, Folkmanová 1928). This monograph and a later updated key for identifying Czechoslovak centipedes led to an increase in the popularity of these invertebrates within the wider community of Czech zoologists. In addition to Folkmanová, other myriapodologists, such as V. Borek, E. Hachler, J. Lang and L. J. Dobroruka published new records (see Tuf & Laška 2005 for review). The revision of the taxonomical status of some centipede species described based on material from this country decreased the total number of species in the national checklist. The increase in faunistic research and monitoring of previously neglected regions of the present Czech Republic since the nineties of the past century resulted in new records and completion of our knowledge of the Czech centipede fauna. The first comprehensive check list of Czech centipedes was published at the beginning of this century (Tajovský 2001). Re-evaluation of the identity of some of the species in the genus *Lithobius* Learch, 1814 described by L. J. Dobroruka from the former Czechoslovakia led to their exclusion and thus a reduction in the number of species known to occur in this country (Tuf et al. 2008).

The lists of species published in the following years (Tuf & Laška 2005, Tuf & Tufová 2008) were brought up to date by including records of another species new to the Czech fauna. The checklist presented is based on published and unpublished data and records, and contains all the species that are known to occur in the Czech Republic.

MATERIALS AND METHODS

The checklist is based on the last published list (Tuf & Tufová 2008) and corrected according to recently presented synonymies (Bonato & Minelli 2014, Tuf & Dányi 2015) and recently recorded species (e.g. Tuf & Kupka 2015). Taxonomy accords with Chilobase (Minelli et al. 2006) and list of geophilomorph centipedes (Bonato & Minelli 2014). New records of centipedes are indicated by the faunistic square code (FSC) for mapping their distribution in the Czech Republic (Buchar 1982).

RESULTS AND DISCUSSION

The following checklist of the centipedes in the Czech Republic based on records in the literature and data recently collected by us contains 72 species. Code superscript numbers at the ends of the species names refer to notes in the following text.

Scutigeromorpha	Scutigeridae	*Scutigera coleoptrata* (Linnaeus, 1758)
Lithobiomorpha	Henicopidae	*Lamyctes emarginatus* Newport, 1844
		Lamyctes africanus (Porath, 1871)[1]
	Lithobiidae	*Eupolybothrus grossipes* (C. L. Koch, 1847)[2]
		Eupolybothrus tridentinus (Fanzago, 1874)
		Harpolithobius anodus (Latzel, 1880)
		Lithobius aeruginosus L. Koch, 1862
		Lithobius agilis L. Koch, 1847
		Lithobius austriacus Verhoeff, 1937
		Lithobius biunguiculatus Loksa, 1947[3]
		Lithobius borealis Meinert, 1868
		Lithobius burzenlandicus Verhoeff, 1934
		Lithobius calcaratus C. L. Koch, 1844
		Lithobius crassipes L. Koch, 1862
		Lithobius curtipes C. L. Koch, 1847
		Lithobius cyrtopus Latzel, 1880
		Lithobius dentatus C. L. Koch, 1844
		Lithobius erythrocephalus C. L. Koch, 1847
		Lithobius forficatus Linnaeus, 1758
		Lithobius lapadensis Verhoeff, 1900
		Lithobius lapidicola Meinert, 1872
		Lithobius latro Meinert, 1872
		Lithobius lucifugus L. Koch, 1862
		Lithobius lusitanus Verhoeff, 1925[4]
		Lithobius luteus Loksa, 1947
		Lithobius macilentus L. Koch, 1862
		Lithobius melanops Newport, 1845
		Lithobius micropodus (Matic, 1980)
		Lithobius microps Meinert, 1868
		Lithobius mutabilis L. Koch, 1862
		Lithobius muticus C. L. Koch, 1847
		Lithobius nodulipes Latzel, 1880
		Lithobius pelidnus Haase, 1880
		Lithobius piceus L. Koch, 1862
		Lithobius punctulatus C. L. Koch, 1847

		Lithobius salicis Verhoeff, 1925[5] *Lithobius schuleri* Verhoeff, 1925 *Lithobius tenebrosus* Meinert, 1872 *Lithobius tricuspis* Meinert, 1872
Scolopendromorpha	Cryptopidae	*Cryptops anomalans* Newport, 1844 *Cryptops hortensis* (Donovan, 1810) *Cryptops parisi* Brölemann, 1920
Geophilomorpha	Dignathodontidae	*Dignathodon microcephalus* (Lucas, 1846) *Henia brevis* (Silvestri, 1896)[6] *Henia illyrica* (Meinert, 1870) *Henia vesuviana* (Newport, 1845)[7]
	Geophilidae	*Clinopodes flavidus* C. L. Koch, 1847 *Geophilus alpinus* Meinert, 1870[8] *Geophilus carpophagus* Leach, 1815 *Geophilus electricus* (Linnaeus, 1758) *Geophilus flavus* (De Geer, 1778) *Geophilus oligopus* (Attems, 1895) *Geophilus osquidatum* Brölemann, 1909 *Geophilus proximus* C. L. Koch, 1847 *Geophilus pygmaeus* Latzel, 1880[9] *Geophilus truncorum* Bergsoe & Meinert, 1866 *Pachymerium ferrugineum* (C. L. Koch, 1835) *Photophilus griseus* Folkmanová, 1928[10] *Polygonarea silvicola* Lawrence, 1955[11] *Stenotaenia linearis* (C. L. Koch, 1835) *Stenotaenia sorrentina* (Attems, 1903)[12]
	Himantariidae	*Haplophilus subterraneus* (Shaw, 1794)[13] *Himantarium gabrielis* (Linneaus, 1767)[14]
	Linotaeniidae	*Strigamia acuminata* (Leach, 1815) *Strigamia crassipes* (C. L. Koch, 1835) *Strigamia pusilla* (Sseliwanoff, 1884)[15] *Strigamia transsilvanica* (Verhoeff, 1928)
	Mecistocephalidae	*Tygarrup javanicus* Attems, 1929[16]
	Schendylidae	*Schendyla carniolensis* Verhoeff, 1902[17] *Schendyla monoeci* Brölemann, 1904 *Schendyla nemorensis* (C. L. Koch, 1837) *Schendyla tyrolensis* (Meinert, 1870) [18]

[1] *Lamyctes africanus* was found recently in Europe (Enghoff et al. 2013), particularly Denmark (outdoors), England and France (indoors). This species (8 females) was found in the Palm greenhouse of the Fairground Flora Olomouc (FSC 6469a), 15 April 2013, leg. I. H. Tuf, M. Maňas & A. Jansová.

[2] *Eupolybothrus grossipes* – its occurrence in the Czech Republic is doubtful, it is only mentioned without precise locality (Southern Moravia) in Folkmanová's key (Folkmanová 1959) and there are no other historical or recent records.

[3] *Lithobius biunguiculatus* was reported for the first time from this country in 2004. In addition to the localities published by V. Laška (2004), there is a new record from Olomouc (FSC 6369d), Central Moravia, of two individuals caught in pitfall traps in 2006 (Navrátil 2007). Four specimens of this species were also collected near the Okrouhlá Natural Monument (NM) in the White Carpathians Protected Landscape Area (PLA) (FSC 6974c), Southeast Moravia, leg. K. Marvanová (Pavelková 2008) in 2006–2007.

[4] *Lithobius lusitanus* is reported only by B. Folkmanová from the Beskydy PLA and by L. J. Dobroruka from the Podyjí National Park (NP) in the fifties and nineties of 20th century (Laška 2004), but its presence was not confirmed by recent investigations (Tajovský 2001, Kula et al. 2011, Kula & Lazorík 2015).

[5] *Lithobius salicis* is reported, like the previous species, only by B. Folkmanová and L. J. Dobroruka (Laška 2004) and not confirmed by the recent intensive investigations of e.g. Podyjí NP (Tajovský 2001), and its presence in the Czech Republic is uncertain.

[6] *Henia brevis* was found for the first time by M. Navrátil (2007) in Olomouc (FSC 6469b); three individuals were heat extracted from soil samples in 2006. This species was also repeatedly collected from soils in apple orchards near Blahotice (FSC 5750d) and Slaný (FSC 5750d), Central Bohemia; a total of 17 individuals over the period 2009–2011, leg. K. Tajovský.

[7] *Henia vesuviana* is recorded in the cities of Jičín (FSC 5558), Eastern Bohemia, and Olomouc (FSC 6469) by P. Riedel in 2006 (Riedel 2008).

[8] *Geophilus alpinus* is a well-known species in the Czech Republic, nevertheless until today it has been repeatedly (cf. Kula & Lazorík 2015) reported under its junior synonym *Geophilus insculptus* Attems, 1895 (Bonato & Minelli 2014).

[9] *Geophilus pygmaeus* is a species reported for the first time by J. Vališ (1902), who collected one female in Boskovice, Central Moravia in March 1901. The second individual was found by M. Navrátil in 2006 in Hodonín, South Moravia, near railway route (FSC 7168b) (Navrátil 2007, Riedel 2008).

[10] *Photophilus griseus* is a mysterious geophilomorph centipede, which was collected by B. Folkmanová who found four specimens in full sun in 1925 at St. John rapids (Svatojánské proudy), which is today located at the Štěchovice Reservoir (Vltava River), Central Bohemia. Folkmanová tried to find this species again for at least another 25 years, but was unsuccessful (Folkmanová 1952). This species was incorrectly reported from Poland (cf. Kaczmarek 1963, 1980). Its validity is uncertain.

[11] *Polygonarea silvicola* – based on Czech record this species was reported for the first time also for the whole of Europe (Dányi & Tuf 2016). One female was found by I. H. Tuf in the Palm greenhouse of the Fairground Flora Olomouc (FSC 6469a), 15 April 2013. The species is originally known from South Africa.

[12] *Stenotaenia sorrentina* is the valid name for species, which is reported under its junior synonym *Clinopodes linearis abbreviatus* (Verhoeff, 1925) (see Bonato & Minelli 2014) from Bílý kříž (FSC 6577a) and Kněhyně (FSC 6575b) in Beskydy PLA by Wytwer and Tajovský (2005).

[13] *Haplophilus subterraneus* is mentioned in a previous checklist under the name *Stigmatogaster subterranea* (Shaw, 1789). This species was recorded by K. Tajovský in the suburban park in České Budějovice (FSC 7052b); information was notified by Lindner (2007).

[14] *Himantarium gabrielis* was found at the car park near Lednice castle (FSC 7166d), South Moravia, 29 April 2012, 1 specimen, leg. R. Vlk.

[15] *Strigamia pusilla* – three individuals of this species were reported recently from the Beskydy PLA (6476d) by J. Kupka (Tuf & Kupka 2015).

[16] *Tygarrup javanicus* occurs in greenhouses in Great Britain, Germany and Austria (Stoev et al. 2010, Decker et al. 2014), one female of this species was found by D. Říhová & J. H. Ponert in mountainous part of the Fata Morgana greenhouse in Prague (FSC 5852c), 12 January 2012.

[17] *Schendyla carniolensis* was found in the White Carpathians PLA, Southeast Moravia: the Ve Vlčí Nature Reserve (FSC 7073c), 18 October 2008, leg. I. H. Tuf; Žítková (FSC 7073a), 12 November 2009, leg. K. Tajovský.

[18] *Schendyla tyrolensis* is mentioned in previous checklists under its synonym *Schendyla montana* Attems, 1895. In addition to the first (Tajovský 1998) and repeated records from North Bohemia, it was collected in soils from apple orchards near Blahotice (FSC 5750d), Slaný (FSC 5750d), Knovíz (FSC 5750d) and in a natural forest steppe habitat at Vinařická hora NM (FSC 5850ab), all in Central Bohemia; in total 18 individuals were collected during the period 2009–2011, leg. K. Tajovský.

Unlike previous versions of the checklist of Czech centipedes (Tajovský 2001, Tuf & Laška 2005, Tuf & Tufová 2008), the species *Folkmanovius paralellus* Dobroruka, 1957, is not listed. Its synonymy is described recently (Tuf & Dányi 2015); *F. paralellus* is a junior synonym of *Clinopodes flavidus.*

Recent records of new centipedes occurring in the Czech Republic indicate that greenhouses are likely to harbour more species of centipedes. In addition to these and other artificial habitats in urban and suburban landscapes, more attention should also be focused on natural biotopes, especially in eastern and southern districts, which might host other species of Carpathian or Pannonian origin.

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