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A Review of the Taxonomy, Geographical Distribution and Ecology of the Centipedes of Yugoslavia

(Myriapoda, Chilopoda)

by

Ivan KOS

Department of Biology, Biotechnical Faculty, Askerceva 12, p.p. 141. Yu-61000 Ljubljana, Slovenia, Yugoslavia

Abstract: Some of the most important problems of taxonomy, distribution and ecology are described. An up to date review of the knowledge of the centipede fauna of Yugoslavia is presented. 1 species of Scutigeromorpha, 86 species of Lithobiomorpha, 62 species of Geophilomorpha and 10 species of Scolopendromorpha are listed. Subspecies are not listed because of their uncertain status. Taxonomic problems arise from inaccurate descriptions: older descriptions are of questionable validity, while others are made on the basis of a small number of specimens so that there are insufficient data on variability. The age and the taxonomic characters of the post-larval stadia are likewise unknown. Some taxa illustrate the processes of speciation and there are many endemic species. There is little ecological information.

1. Introduction:

The flora and fauna of the Balkan peninsula are very rich. Because of its location, relief and geological history, the Balkan peninsula can be considered as "refuge". On one hand, many thermophilous species survived the glacial periods. During interglacial periods these species expanded their area of distribution. On the other hand, some populations of boreal species became subdivided and the process of speciation took place in these geographically isolated populations. Here the process of evolution can be observed, because in a relatively small area various closely related populations can be found.

These general conclusions are valid for the majority of plant and animal taxa as well as for centipedes. There are some publications about taxonomy, geographic distribution and ecology of centipedes of Yugoslavia, but very little is known about these fields of research.

2. Taxonomy:

The most extensive studies on taxonomy of centipedes in what is now Yugoslavia were done by LATZEL (1880, 1882), ATTEMS (1895, 1899, 1903, 1929a, 1929b, 1930, 1949, 1951, 1959) and by VERHOEFF (1899, 1900, 1925, 1929, 1930, 1931, 1934, 1935, 1937a, 1937b, 1938). The taxonomy of centipedes also was studied by FOLKMANOVA (1935, 1940, 1946), HOFFER (1935, 1937) and by JAWLOWSKI (1933). Recently, more data have been added by MATIC (1957, 1966, 1979), MATIC & TEODOREANU (1966), MATIC & DARABANTU (1968), and MATIC & STENZER (1977). Some taxonomic problems were solved by EASON (1970, 1972, 1974, 1982, 1983) and EASON & MINELLI (1976). The author is currently working in this field (KOS 1987, 1988).

The present knowledge of fauna of centipedes in Yugoslavia is shown in Table 1. It lists 62 species of Geophilomorpha, 10 species of Scolopendromorpha, 86 species of Lithobiomorpha and 1 species of Scutigeromorpha. Subspecies are not included in this list because of their uncertain status. For instance, two subspecies of the same species have been reported from the same locality. Presumably most subspecies will either get the rank of a full species or will sink into synonymy. Inaccurate descriptions of some species also represent a great problem. Some older descriptions are of questionable validity (e.g. LATZEL 1880), whereas some others are made on the basis of a small number of specimens (1 or 2) (e.g. VERHOEFF 1937, MATIC 1979, MATIC & STENZER 1977, MATIC & DARABANTU 1968). It is also important to know the stage of development of the specimens studied, because the taxonomic characters change during post-larval development (ANDERSON 1978, 1979). More precise descriptions of the variability of taxonomic characters within the same population, and better knowledge of their post-larval development, will resolve the status of some species described by some earlier authors. The fauna of centipedes in the Balkan peninsula has not yet been studied extensively. Therefore we can expect that many new taxa will be discovered in the future.

Table 1: The present knowledge of the fauna of centipedes (Chilopoda) in Yugoslavia. The distribution is according to the republic (SLO Slovenia, CRO Croatia, BIH Bosnia and Herzegovina, MTG Montenegro, SRB Serbia, MAC Macedonia), to biogeographic district by MATVEJEV & PUNCER (Biog) (1 East Alpine, 2 Subalpine, 3 Mediterranean, 4 Submediterranean, 5 Aegean Submediterranean, 6 Outer Dinaric, 7 Inner Dinaric, 8 Dinaric Moesian, 9 Moesian, 10 Scardic Pinic, 11 Pannonian, 12 Subpannonian, 13 Subcarpathian) and to their general distribution (G.D.) (en Endemic, il Illiric, pa Palearctic, me Mediterranean, al Alps, eu European, mi Middle Europe, se Southeastern Europe, s South Europe).

Species	SLO	CRO	BIH	MTG	SRB	MAC	biogeographic district	G.D.
Geophilomorpha								
Bothriogaster signata ATTEMS, 1926	–	–	–	–	–	+	5	en
Brachyschendyla montana (ATTEMS, 1895)	+	+	+	–	–	–	2,6,7	?
Chaetechelyne montana MEINERT, 1870	–	+	–	–	–	–	4	?
Ch. hercegovinensis VERHOEFF, 1938	–	–	+	–	–	–	4	en
Ch. vesuviana (NEWPORT, 1845)	+	+	–	–	–	–	3,4,7	pa
Chalandea scheerpeltzi ATTEMS, 1952	+	–	–	–	–	–	1,7	en
Clinopodes abbreviatus (VERHOEFF, 1925)	+	+	+	+	–	–	6,7	?
C. escherichii (VERHOEFF, 1896)	+	+	+	+	–	–	4,6,7	?
C. flavidus C.L. KOCH, 1847	+	+	+	+	+	–	1,2,4,6,7	?
C. improvisus VERHOEFF, 1943	–	–	+	–	–	–	?	en
C. karamani VERHOEFF, 1943	–	–	+	–	–	–	?	en
C. linearis (C.L. KOCH, 1835)	+	+	–	–	–	–	6,7	W pa
C. polytrichus (ATTEMS, 1903)	–	–	–	–	+	–	9	?
C. rodnaensis (VERHOEFF, 1938)	–	+	+	–	–	–	6	il
C. skopljensis (VERHOEFF, 1938)	–	–	–	–	–	+	5	en
C. styriacus (ATTEMS, 1895)	+	–	–	–	–	–	2	en
C. trebevicensis (VERHOEFF, 1898)	+	+	+	+	–	–	6,7	il ?
Dalmatodyla splitensis VERHOEFF, 1938	–	+	–	–	–	–	3	en
Dicellophilus carniolensis C.L. KOCH, 1847	+	+	+	–	–	–	1,6,7	il
Dignathodon microcephalum (LUCAS, 1846)	–	+	+	+	+	–	4,9	me
Geophilus arenarius MEINERT, 1870	–	+	–	–	–	–	4	?

Species	SLO	CRO	BIH	MTG	SRB	MAC	biogeographic district	G.D.
G. electricus (L., 1758)	+	+	+	–	+	–	6.7	eu
G. impressus C.L. KOCH, 1847	–	+	–	–	–	–	3	en ?
G. insculptus ATTEMS, 1895	–	+	+	–	+	–	2,4,7,9	il
G. pygmaeus LATZEL, 1880	+	+	–	–	–	–	2,6	al
G. pusillifrater VERHOEFF, 1898	–	+	–	–	–	–	4	en
G. bosniensis VERHOEFF, 1895	–	–	+	–	–	–	6	en
G. cribelliger VERHOEFF, 1895	–	–	+	–	–	–	4	en
G. antecribellatus VERHOEFF, 1895	–	+	+	–	–	–	4,6	en
G. carnicus VERHOEFF, 1928	+	–	–	–	–	–	2	en
G. carpophagus LEACH, 1815	+	+	–	+	–	–	4,7	pa
G. labrofissus VERHOEFF, 1938	+	–	–	–	–	–	1 ?	en
G. oligopus ATTEMS, 1895	+	–	+	–	–	–	7	eu
G. pauropus ATTEMS, 1927	+	+	–	–	–	–	6,7	en
G. promontorii VERHOEFF, 1928	+	–	–	–	–	–	?	?
Nesogeophilus palpiger (ATTEMS, 1903)	+	–	–	–	–	–	4	en
Brachygeophilus strictus (LATZEL, 1880)	–	+	–	–	–	–	3,4	en
Henia attemsi VERHOEFF, 1928	+	–	–	–	–	–	4	en
H. bicarinata (MEINERT, 1870)	–	+	+	–	–	–	4	en
H. crinita ATTEMS, 1903	+	–	+	–	–	–	4,6	il
H. illyrica (MEINERT, 1870)	+	+	+	+	+	–	4,6,7	il
H. pulchella (MEINERT, 1870)	–	+	–	–	–	–	3	me
Himantarium gabrielis (L. 1767)	+	+	+	+	–	–	3,4,6	me
Insigniporus sturanyi ATTEMS, 1903	–	–	–	–	–	+	5	en
Mecistocephalus maxillaris (GERVAIS, 1837)	–	–	–	–	?	–	?	?
Necrophloeophagus longicornis (LEACH, 1815)	+	+	+	+	+	–	4,6,7,9	pa
Pachymerium ferrugineum C.L. KOCH, 1835)	+	+	+	+	–	+	2,3,4,6,12	pa
Pleurogeophilus hercegovinensis VERHOEFF, 1901	–	–	+	–	–	–	4	en
P. gorizensis (LATZEL, 1880)	+	–	–	–	–	–	4	en
Schendyla nemorensis (C.L. KOCH, 1836)	+	+	+	–	–	–	4,7	pa
Sch. (E.) carniolensis (VERHOEFF, 1902)	+	–	–	–	+	–	7,9	en
Sch. dalmatica ATTEMS, 1904	–	+	–	–	–	–	4	en
Stigmatogaster gracilis (MEINERT, 1870)	–	+	–	+	–	–	3,4	me
Strigamia acuminata (LEACH, 1815)	+	+	+	+	–	–	1,2,6,7	eu
S. carniolensis (VERHOEFF, 1935)	+	–	–	–	–	–	?	en
S. crassipes (C.L. KOCH, 1835)	+	+	+	–	–	–	1,2,6,7	pa
S. engadina (VERHOEFF, 1935)	+	–	–	–	–	–	6	il ?
S. hercegovinensis (VERHOEFF, 1935)	–	–	+	–	–	–	4	en
S. transsylvanica (VERHOEFF, 1928)	+	+	+	+	+	–	6,7,9	il ?
Thracophilus bulgaricus VERHOEFF, 1926	–	–	+	–	–	–	4	se
T. monoporus ATTEMS, 1951	–	+	+	–	–	–	4	en
T. subterraneus VERHOEFF, 1943	–	–	+	–	–	–	4	en

Species	SLO	CRO	BIH	MTG	SRB	MAC	biogeographic district	G.D.
Lithobiomorpha								
Eupolybothrus acherontis (VERHOEFF, 1900)	-	-	+	–	–	–	4	en
E. caesar (VERHOEFF, 1899)	–	–	+	–	–	–	4	en
E. fasciatus (NEWPORT, 1845)	?	+	+	+	–	–	1,2,7	s
E. grossipes (C.L. KOCH, 1847)	+	+	–	–	–	–	1,2,6,7	s
E. herzegovinensis (VERHOEFF, 1900)	–	+	+	–	–	–	4	en
E. leostygis (VERHOEFF, 1899)	+	–	+	–	–	–	4	en
E. macedonicus (VERHOEFF, 1943)	–	–	–	–	–	+	10	en
E. magnificus (HOFFER, 1935)	–	+	+	+	–	–	4	en
E. obrovensis (VERHOEFF, 1930)	+	–	–	–	–	–	4	en
E. sketi MATIC, 1979	–	–	–	–	–	+	10	en
E. spiniger (LATZEL, 1888)	–	–	+	–	–	–	8	en
E. stygis (FOLKMANOVA, 1940)	–	–	+	–	–	–	4	en
E. transsylvanicus (LATZEL, 1882)	–	+	+	+	+	–	9,13	se
E. tridentinus (FANZAGO, 1874)	+	+	+	+	+	–	1,2,6,7	se
Harpolithobius anodus (LATZEL, 1880)	+	+	+	+	–	–	1,2,7	E-eu
H. calcivagus VERHOEFF, 1925	+	–	–	–	–	–	1,2,7	en
H. dentatus (MATIC, 1957)	–	–	–	–	+	–	9	en
H. gottscheensis VERHOEFF, 1937	+	+	–	–	–	–	6	en
H. komareki FOLKMANOVA, 1946	–	–	+	–	–	–	4 ?	en
Lithobius (L.) absoloni FOLKMANOVA, 1935	–	–	–	+	–	–	4	en
L. (L.) agilis C.L. KOCH, 1847	+	+	+	–	–	–	1,2,6,7	pa
L. (L.) aspersus ATTEMS, 1899	–	+	–	–	–	–	?	?
L. (L.) bayeri FOLKMANOVA, 1935	–	+	–	–	–	–	?	en
L. (L.) borealis MEINERT, 1872	+	–	?	–	–	–	1,7	pa
L. (L.) castaneus NEWPORT, 1844	+	+	+	–	+	–	1,2,6,7	me ?
L. (L.) cerberi (VERHOEFF, 1943)	–	–	+	–	–	–	4	en
L. (L.) croaticus MATIC et TODOREANU, 1966	+	+	–	–	–	–	7	en
L. (L.) dalmaticus LATZEL, 1880	–	+	–	–	–	–	3	en
L. (L.) dentatus C.L. KOCH, 1844	+	+	+	–	–	–	1,2,6,7	pa
L. (L.) dolinophilus VERHOEFF, 1937	+	–	–	–	–	–	4	en
L. (L.) erythrocephalus C.L. KOCH, 1847	+	–	+	+	–	+	1,2,6,7,10	pa
L. (L.) forficatus (L., 1758)	+	+	+	+	+	+	1,2,4,6,7,12,13	pa
L. (L.) illyricus LATZEL, 1880	–	+	–	–	–	–	4	en
L. (L.) jugoslavicus MATIC et DARABANTU, 1968	+	–	–	–	–	–	7	en
L. (L.) karamani VERHOEFF, 1937	–	–	–	–	–	+	5	en
L. (L.) lakatnicensis VERHOEFF, 1926	–	–	–	–	+	–	9	en
L. (L.) lapadensis VERHOEFF, 1900	–	+	–	–	–	–	4	?
L. (L.) lapidicola MEINERT, 1872	+	–	+	–	–	–	1	pa
L. (L.) latro MEINERT, 1872	+	+	+	–	–	–	1,2,7	?
L. (L.) luciani FOLKMANOVA, 1935	–	+	–	–	–	–	?	?
L. (L.) lucifugus L. KOCH, 1862	+	+	+	+	–	–	1,7	il ?
L. (L.) macilentus L. KOCH, 1862	+	–	–	–	–	–	7	mi

Species	SLO	CRO	BIH	MTG	SRB	MAC	biogeographic district	G.D.
L. (L.) matici PRUNESCU, 1966	–	–	+	+	+	–	6,7,9,13	se
L. (L.) melanops NEWPORT, 1845	+	+	+	–	–	–	?	pa
L. (L.) microporus VERHOEFF, 1937	+	–	–	–	–	–	6	en
L. (L.) mucronatus VERHOEFF, 1937	+	–	–	–	–	–	?	en
L. (L.) mutabilis L. KOCH, 1862	+	+	–	–	+	–	1,2,4,6,7,12,13	mi
L. (L.) muticus C.L. KOCH, 1847	+	+	+	+	–	–	1,2,6,7,10,12,13	pa
L. (L.) nigripalpis L. KOCH, 1867	–	–	–	–	+	–	9	*me*
L. (L.) nodulipes LATZEL, 1880	+	+	+	–	–	–	1,2,4,7	mi
L. (L.) obrovensis VERHOEFF, 1930	+	–	–	–	–	–	4	en
L. (L.) parietum VERHOEFF, 1899	+	+	–	–	–	–	2,12	se
L. (L.) pelidnus HAASE, 1880	+	–	–	–	–	–	7	mi
L. (L.) peregrinus LATZEL, 1880	–	+	–	–	+	–	3,4	me
L. (L.) petnicensis FOLKMANOVA, 1935	–	–	–	–	+	–	9	en
L. (L.) piceus L. KOCH, 1862	+	+	+	–	–	+	2,7,10	pa
L. (L.) planinaensis MATIC et DARABANTU, 1968	+	–	–	–	–	–	1	en
L. (L.) pusillus LATZEL, 1880	+	+	+	+	–	–	4,6,7,8	?
L. (L.) pygmaeus LATZEL, 1880	+	+	+	–	–	–	1,7	il ?
L. (L.) quartocomma VERHOEFF, 1900	–	+	+	+	–	–	3,4	me
L. (L.) remyi JAWLOWSKI, 1933	–	–	–	–	+	–	9	en
L. (L.) romanus MEINERT, 1872	–	–	–	+	–	–	3	?
L. (L.) serbicus MATIC, 1957	–	–	–	–	+	–	9	en
L. (L.) simplex FOLKMANOVA, 1946	–	–	+	–	–	–	4	*en*
L. (L.) slovenicus MATIC, 1979	+	–	–	–	–	–	4	en
L. (L.) stygius LATZEL, 1880	+	+	+	–	–	–	6,7	*en*
L. (L.) tenebrosus MEINERT, 1872	+	+	+	–	–	–	1,7,8	en ?
L. (L.) tricuspis MEINERT, 1872	+	+	–	–	–	–	1,2	mi
L. (L.) validus MEINERT, 1872	+	+	+	–	+	–	1,2,6,7	mi
L. (Lithonannus) apfelbecki VERHOEFF, 1900	–	–	+	–	–	–	4	en
L. (L.) burzenlandicus VERHOEFF, 1931	+	+	+	+	+	–	1,6,7,8	se
L. (L.) calcivagus VERHOEFF, 1900	–	+	+	–	–	–	4	en
L. (L.) microps MEINERT, 1868	–	?	+	?	–	–	4,7	?
L. (L.) reiseri VERHOEFF, 1900	–	–	+	–	–	–	4	se
L. (L.) trebinjanus VERHOEFF, 1900	–	–	+	–	–	–	4	en
L. (L.) wardaranus VERHOEFF, 1937	+	+	–	+	–	–	6,7	se
L. (Monotarsobius) aeruginosus L. KOCH, 1862	+	+	+	–	–	–	1,2,6,7	eu
L. (M.) austriacus VERHOEFF, 1937	+	–	–	–	–	–	1	mi
L. (M.) crassipes L. KOCH, 1862	+	+	+	+	+	–	4,6,9,11,12,13	pa
L. (M.) hadzii MATIC et DARABANTU, 1968	–	+	–	–	–	–	6?,7?	en
L. (M.) zveri MATIC et STENZER, 1977	+	–	–	–	–	–	7	en
L. (Troglolithobius) matulicii VERHOEFF, 1899	–	–	+	–	–	–	4	en
L. (T.) sketi MATIC et DARABANTU, 1968	–	–	+	+	–	–	4	en
L. (T.) troglomontanus (FOLKMANOVA, 1940)	–	–	+	–	–	–	?	en
Pleurolithobius ionicus (SILVESTRI, 1896)	–	+	–	+	–	–	4	E me

Species	SLO	CRO	BIH	MTG	SRB	MAC	biogeographic district	G.D.
Strandiolus jugoslavicus HOFFER, 1937	−	−	+	−	−	−	4	en
Scolopendromorpha								
Cryptops anomalans NEWPORT, 1844	+	+	+	+	+	+	3,4,6,7,9,12,13	pa
C. croaticus VERHOEFF, 1931	+	+	+	−	−	−	3,4,6,7	il ?
C. hortensis LEACH, 1815	+	+	+	−	−	−	1,2,6,7	pa
C. illyricus VERHOEFF, 1933	+	−	−	−	−	−	4	en
C. parisi BROLEMANN, 1920	+	+	+	+	−	−	2,4,6,7,8,12	eu
C. rucneri MATIC et TEODOREANU, 1966	+	+	−	−	−	−	3,7	en ?
C. umbricus VERHOEFF, 1931	−	+	−	−	−	−	4	en
Scolopendra dalmatica C.L. KOCH, 1847	−	+	+	+	−	−	3,4	en
S. cingulata LATREILLE, 1829	+	+	+	+	−	+	3,4,5	me
Theatops erythrocephalus (C.L. KOCH, 1847)	−	+	+	+	−	−	3,4	me ?
Scutigeromorpha								
Scutigera coleoptrata (L., 1758)	+	+	−	+	−	+	3,4	mi

The cave habitat is especially interesting. Because of the predatory way of nutrition of centipedes, their abundance in caves is extremely low and specimens of cave populations are not easily found. Despite this the percentage of centipede taxa in caves in Yugoslavia is high and it is very likely that further cave taxa will be discovered. There are also some taxonomic problems in the higher taxonomic groups, e.g. the subgenus *Troglolithobius* MATIC, 1967. As a result of a more precise knowledge of evolution of centipedes and of geological history of southern Europe, it will be possible to establish higher taxonomic categories taking into account the principles of monophyletic development.

3. Zoogeographic Distribution:

ATTEMS (1929, 1949, 1959) and VERHOEFF (1937) described the zoogeographic distribution of centipedes. Conclusions made by both authors were based upon the knowledge of the distribution of single species available at that time. Problems of geographic distribution are closely related to taxonomic problems. Up to now the choice of localities and the presentation of the distribution which was derived from it has been unsystematic and incomplete. Therefore it is impossible to give an accurate distribution of individual species of centipedes in Yugoslavia. The survey of the distribution of centipedes is derived from the published data of ATTEMS 1949, 1959, MATIC 1957, 1967, 1979, MATIC & TEODOREANU 1967, MATIC & DARABANTU 1968, MATIC & STENZER 1977, TOMIC-JOVANOVIC 1964, KOS 1987, 1988a). The author's unpublished data are also included. The distribution of centipedes is shown in Table 1 according to the republic, to biogeographic districts (MATVEJEV & PUNCER 1989) and to their general distribution (ATTEMS 1949, 1959, MATIC 1966, 1972, MINELLI 1978, VERHOEFF 1937). A particularly interesting area is Herzegovina (in the republic of Bosnia and Herzegovina) with its own cave fauna. Many endemic species are known from this area.

4. *Ecology:*

Very little is known about the ecology of centipedes in Yugoslavia. There are only few data on vegetation of the localities where specimens were found (MATIC 1966, MATIC & TEODORE-ANU 1966). The author researched communities of centipedes in five places in Slovenia (KOS 1988b, unpublished). He collected data on species associations, on abundance and distribution of single species on these places. In the Balkan peninsula there live many endemic species of centipedes forming endemic communities. Therefore, results from other biogeographic areas cannot be easily applied to this area. The knowledge of some basic ecologic characteristics of centipedes could help us in zoogeographic analysis and understanding of some processes of speciation. Centipedes are sensitive to changes in the environment. Because of their long life cycles (ALBERT 1983) and their predatory nature, centipedes might serve as indicators of changes in the environment.

5. Literature:

ALBERT, A. M. (1983): Life cycle of Lithobiidae – with a discussion of the R- and K- selection theory. – Oecologia **56:** 272 - 279

ANDERSSON, G. (1978): An investigation of the post-embryonic development of the Lithobiidae – some introductory aspects. – Abh. Verh. naturwiss. Ver. Hamburg, *21/22:* 63 - 71.

– (1979): On the use of larval characters in the classification of lithobiomorph centipedes (Chilopoda: Lithobiomorpha). – Myriapod Biology, Academic Press Inc. (London) Ltd.: 73 - 81

ATTEMS, C. (1903a): Synopsis der Geophiliden. – Zool. Jahrb. (Syst.) **18:** 155 -302

– (1903b): Beiträge zur Myriopodenkunde. – Zool. Jahrb. (Syst.) **18:** 63 - 154.

– (1929a): Myriapoda. 1. Geophilomorpha. – Tierreich **52:** 1 - 388.

– (1929b): Die Myriopodenfauna von Albanien und Jugoslavien. – Zool. Jahrb. (Syst.) **56:** 269 - 356.

– (1930): Myriapoda 2. Scolopendromorpha. – Tierreich, **54:** 1 - 308.

– (1949): Die Myriopodenfauna der Ostalpen. – Sitz.ber. österr. Akad. Wiss. Wien, math.-naturw. Kl. I **158:** 79 - 153

– *(1959): Die Myriopoden der Höhlen der Balkan-Halbinsel. – Ann. Naturhist. Mus. Wien, 63:* 281 - 406, Taf. 8 - 9.

EASON, E.H. (1970): A redescription of the species of *Eupolybothrus* VERHOEFF s. str. preserved in the British Museum (Natural History) and the Hope Department of Zoology, Oxford (Chilopoda: Lithobiomorpha). – Bull. Brit. Mus. (Nat. Hist.) Zoology **19:** 289 - 310.

– (1972): The type specimens and identity of the species described in the genus *Lithobius* by C.L. KOCH and L. KOCH from 1841 to 1878 (Chilopoda: Lithobiomorpha). – Bull. Brit. Mus. (Nat. Hist.) Zoology **22:** 105 - 150.

– (1974): The type specimens and identity of the species described in the genus *Lithobius* by F. MEINERT, and now preserved in the Zoological Museum, Copenhagen University (Chilopoda: Lithobiomorpha). – Zool. J. Linn. Soc. **55:** 1 - 52.

– (1982): A review of the north-west Lithobiomorpha with a revised key to their identification. – Zool. J. Linn. Soc. **74:** 9 - 33.

– (1983): The identity of the European and Mediterranean species of Lithobiidae (Chilopoda) described by K.W. VERHOEFF and now represented by material preserved in the British Museum (Natural History). – Zool. J. Linn. Soc. **77:** 111 - 144.

EASON, E.H. & A. MINELLI (1976): The identity of the species of Lithobiidae described by F. FANZAGO and G. FEDRIZZI from 1874 to 1881 (Chilopoda, Lithobiomorpha). – Fragm. Entom. *12: 183 - 205.*

FOLKMANOVA, B. (1935): Nov druhy stonozek celedi Lithobiidae z balkánskych jeskyn. – Priroda (Brno) **28:** 172 - 176.

– (1940): O novych balkanskych jeskynnich Chilopodech ve sberech Dr. K. Absolona. – Vest. ces. zool. spol. **8:** 47 - 58.

– (1946): Novi Lithobiove (Chilopoda) z balkanskych jeskyn. – Priroda (Brno) **38** (3/4): 1 - 14.

HOFFER, A. (1935): Novy jeskynni Chilopod z Jugoslavie, *Bothropolys magnificus* n. sp.. – Sborn. klub. prirod. Brno **18:** 66 - 71.

– (1937): Description des nouveaux Chilopodes cavernicoles du Karst de l'Europe méridionale 1. *Strandiolus jugoslavicus* n.g. n.sp.. – Festschrift Embrik Strand **2:** 427 - 432, Taf. 28.

JAWLOWSKI, H. (1933): Nouvelles especes de Myriopodes des grottes de la Yougoslavie recueillies par le Dr. P. REMY (Nancy). – Ann. Mus. Zool. Polon. **9:** 363 - 364.

KOS, I. (1987): Contribution to the knowledge of taxonomy and distribution of *Lithobius validus* MEINERT 1872 (Chilopoda, Lithobiidae) in Slovenia (Yugoslavia). – Biol. Vestnik **35:** 31 - 46.

– (1988 a): Contribution to the knowledge of fauna of Lithobiomorpha (Chilopoda) in Slovenia (Yugoslavia). – Biol. Vestnik **36:** 13 - 24.

– (1988 b, not published): Problemi kvalitativnega in kvantitativnega vzorcenja skupine strig (Chilopoda). – University Ljubljana, Biotechnical Faculty, Department of Biology: 1 - 85.

MATIC, Z. (1957): Contribution a la connaissance des Chilopodes cavernicoles de Yougoslavie. – Bull. Mus. Hist. nat. Pays Serbe B **10:** 9 - 23.

– (1966): Clasa Chilopoda, Subclasa Anamorpha. – Fauna Repub. soc. Romania **6** (1): 1 - 272.

– (1966): Contribution a la connaissance des Scolopendromorphes (Scolopendromorpha, Chilopoda) de Croatie. – Biol. Glasnik **19:** 19 - 26.

– (1972): Clasa Chilopoda, Subclasa Epimorpha. – Fauna Repub. soc. Romania **6** (2): 1 - 224.

– (1978): Chilopodi d'Italia e di Jugoslavia raccolti dal Dr. Maurizio PAOLETTI. – Boll. Soc. ent. ital. **110:** 164 - 166.

– (1979): Nouveautes sur la faune des Chilopodes de Yougoslavie. – Biol. Vestnik **27:** 147 - 155.

MATIC, Z. & C. DARABANTU (1968): Contribution a la connaissance des Chilopodes de Yougoslavie. – Acta Sc. Art. Slov., Cl. IV Hist. Nat. et Med. **10:** 201 - 227.

MATIC, Z. & I. STENZER (1977): Beitrag zur Kenntnis der Hundertfüßler (Chilopoda) aus Slowenien. – Biol. Vestnik **251:** 55 - 62.

MATIC, Z. & M. TEODOREANU (1966): Contribution a la connaissance des Lithobiides (Chilopoda – Lithobiidae) de Croatie. – Biol. Glasnik **19:** 19 - 26.

MATVEJEV, S. & I. PUNCER (1989): Map of Biomes – Landscapes of Yugoslavia. – Nat. Hist. Museum, Belgrade: 1 - 77.

MINELLI, A. (1978): Zur Taxonomie und Chorologie der Chilopoden Italiens: Entwurf einer Monographie. – Abh. Verh. naturwiss. Ver. Hamburg N.F. **21/22:** 149 - 159.

VERHOEFF, K.W. (1899): Beiträge zur Kenntnis palaearktischer Myriopoden 9. Neue und wenig bekannte Lithobiiden. – Verh. Zool.-Bot. Ges. Wien **49:** 451 - 459.

– (1900): B.z.K.p.M. 15. Lithobiiden aus Bosnien, Herzegowina und Dalmatien. – Berlin. Entom. Z. **45:** 153 - 179.

– (1925): Beiträge zur Kenntnis der Steinläufer, Lithobiiden. – Arch. Naturgeschichte **91:** 124 - 158.

– (1929): Arthropoden aus südostalpinen Höhlen, gesammelt von Karl STRASSER. 2. Aufsatz. – Mitt. Höhlen- Karstforschung **1929:** 41 - 55.

– (1930): Arthropoden aus südostalpinen Höhlen, gesammelt von Karl STRASSER. 4. Aufsatz. – Mitt. Höhlen- und Karstforschung **1930:** 40 - 43.

– (1931): Arthropoden aus südostalpinen Höhlen, gesammelt von Karl STRASSER. 6. Aufsatz.. – Mitt. Höhlen- Karstforschung **1931:** 14 - 30.

– (1934): Beiträge zur Systematik und Geographie der Chilopoden. – Zool. Jahrb. (Syst.) **66:** 1 - 112.

– (1935): Über *Scolioplanes* (Chilopoda). – Zool. Anz. **111:** 10 - 23.

– (1937a): Chilopoden – Studien. Zur Kenntnis der Lithobiiden. – Arch. Naturgeschichte N.F. **6:** 171 - 257.

– (1937b): Chilopoden und Diplopoden aus Jugoslavischen Höhlen. – Mitt. Höhlen- Karstforschung **1937:** 95 - 103

– (1938): Chilopoden-Studien, zur Kenntnis der Epimorphen. – Zool. Jahrb. Syst. **71:** 339 - 407, Taf. 6 - 8.