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AN OVERVIEW OF THE DATA ON THE TERRESTRIAL MOLLUSCS IN LITHUANIA

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ABSTRACT: Data on species of land snails and slugs of Lithuania published during the last 160 years are summarized and compared with the most recent information from Poland and Latvia. A total of 83 species of 18 families of terrestrial molluscs have been recorded from Lithuania: 68 snail and 15 slug species. The occurrence of two of them: *Vertigo genesii* (Gredler) and *Aegopinella nitens* (Michaud) is doubtful. Data on terrestrial molluscs of adjacent countries indicate that 20 more species can be expected to be found in Lithuania. Two of them would be new also to Poland or Latvia: *Vertigo lilljeborgi* (Westerlund, 1871) and *Zoogenetes harpa* (Say, 1824).

KEY WORDS: terrestrial molluscs, snails, slugs, faunistics, distribution, Lithuania

INTRODUCTION

Interest in the mollusc fauna of Lithuania seems to have begun as early as the mid-19th century (GERSTFEDT 1859, BRAUN 1884). Since then, a number of faunistic malacological papers have been published. In spite of this, the data on the terrestrial gastropods of Lithuania, Latvia and other Baltic regions (at that time being a part of the USSR) were probably unavailable for KERNEY et al. (1983) when they published one of the most comprehensive reviews on European land snails. This was caused mainly by the fact that most of the published records of land gastropods from these countries were attributed to the USSR. Besides, most of the data were published in local scientific journals or books, which were difficult to obtain.

The main objectives of this work were: a) to present an overview of the terrestrial mollusc fauna of Lithuania, b) to indicate still unrecorded species whose occurrence in Lithuania is likely, c) to present additional information on the distribution of the recorded species in this part of Europe.

GEOGRAPHY AND CLIMATE

Cartographically and geographically, Lithuania is located in the centre of Europe and belongs to the Baltic-Scandinavian region (ŠALKAUSKIS 1919, BERGSTROM 1992) (Fig. 1). Its surface area is 65,200 km^2, with plains in the east and hilly areas in the west. Topographically, Lithuania is divided into six regions, with hills and flat lowlands alternating (EL 1990).

The surface of the greater part of Lithuania was formed from glacial deposits during the last ice age (Valday) approximately 12,000–20,000 years ago. The bedrock, climatic peculiarities, surface character, hydrographic system, flora and farming have affected the soil formation. Today, 37 types of soil can be distinguished in Lithuania (MAŽVILA 1998). The greatest amount of acidic subsoil occurs in most areas of western Lithuania, where a carbonated layer is located deeper. The carbonated layer in the eastern part of the country is located at a shallower level, so that the subsoil is less acidic there. According to the data from 1985–93, conditionally acidic soils constitute only 18.8% in Lithuania (MAŽVILA 1998).

The hydrographic system is rather dense (1 km: 0.6 km of rivers). It includes 8,000 rivers (75% of them shorter than 10 km) and 3,000 lakes. The greater part of Lithuania belongs to the Nemunas River basin (CE 1989).

The climate is transitional between the West European maritime (Atlantic) and Eurasian continental, and displays seasonal fluctuations of temperature and precipitation (MAŽVILA 1998). It is characterised by moderately hot summers (+18.5–22.2°C) and fairly cold (up to –20– –30°C) and long (105–135 days) winters, fairly high annual precipitation (ca 600 mm) and rather short vegetation period (185–196 days).

METHODOLOGY

The paper was based on literature data. The nomenclature follows KERNEY et al. (1983).

The main sources of data were: a detailed faunistic work from the Wielkopolska region, western Poland (KORALEWSKA-BATURA 1992), the catalogue of the fauna of Poland (RIEDEL 1988), a list of gastropods and bivalves of Latvia (RUDZITE et al. 1997) and recent faunistic publications from Lithuania (ŠIVICKIS 1960, GURSKAS 1997). As far as Poland is concerned, only the data from the northern and central lowlands (Baltic coast, Pomeranian Lakeland, Masurian Lakeland, Wielkopolsko-Kujawska Lowland, Masovian Lowland, Podlasie with the Białowieża Forest) have been analysed (cf RIEDEL 1988) (Fig. 1).

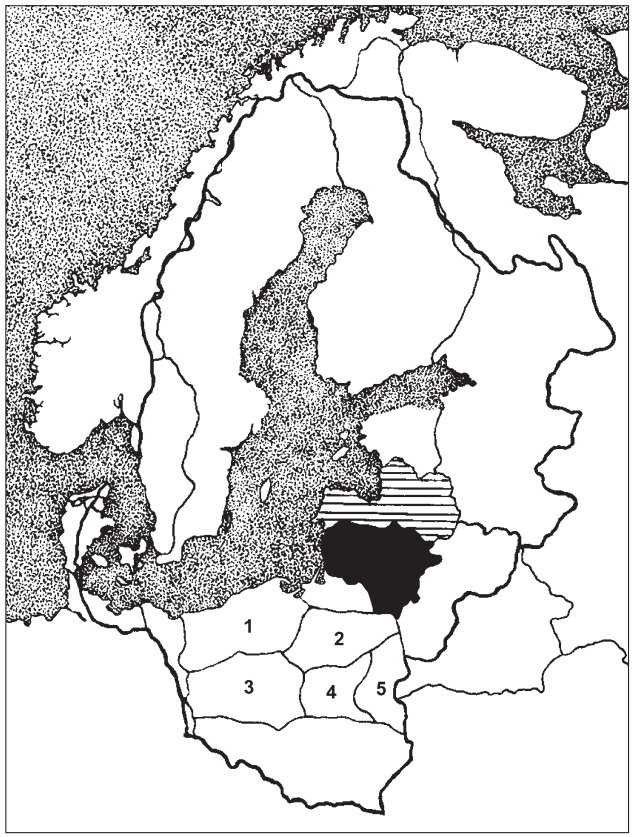

Fig. 1. Map of the Baltic-Scandinavian region, showing the position of Lithuania (black), Latvia (hatched) and the lowlands of Poland (numbered): 1 – Baltic coast, Pomeranian Lakeland [= Pojezierze Pomorskie], 2 – Masurian Lakeland [= Pojezierze Mazurskie], 3 – Wielkopolsko-Kujawska Lowland [= Nizina Wielkopolsko-Kujawska], 4 – Masovian Lowland [= Nizina Mazowiecka], 5 – Podlasie and the Białowieża Forest [= Puszcza Białowieska]

HISTORY OF MALACOLOGICAL STUDIES IN LITHUANIA

The first scientific information on the land gastropods of Lithuania comes from the years 1859 and 1884, when GERSTFEDT (1859) and BRAUN (1884) listed only 47 species of land and freshwater molluscs. All the material analysed in these papers was from the collections of Riga scientists. Then, as a result of studies carried out by DYBOWSKI, this number increased to 74 species (DYBOWSKI 1885, 1903, 1908, DYBOWSKI & GODLEWSKI 1885, 1886).

The French consul MÖLLENDORF (1898) studied some sites near the rivers Nemunas and Neris and some lakes close to Vilnius in the late autumn; his collection contains only 35 species of land snails. His work is known as the first more significant study of Lithuanian land snails.

Later, a number of studies were conducted in the area of eastern and western Prussia and the Kuršiu Nerija Spit (HILBERT 1909, 1913, LINDHOLM 1906, 1914, PROTZ 1903, RIEMSCHNEIDER 1906), and in the environs of Vilnius (ADAMOWICZ 1939, BĄKOWSKI 1892, DYBOWSKI & GROCHMALICKI 1919, 1920, DYRDOWSKA 1928, 1930, FELIKSIAK 1935, POLIŃSKI 1917, 1922). These publicatons provided some new information on Lithuanian gastropods. All these studies were carried out sporadically and only very locally (Fig. 2).

Further papers devoted to the gastropods of Lithuania were compiled by ŠIVICKIS (1938), SCHLESCH and KRAUSP (SCHLESCH 1937, SCHLESCH & KRAUSP 1938). They recorded 62 (now 65) species of land gas-

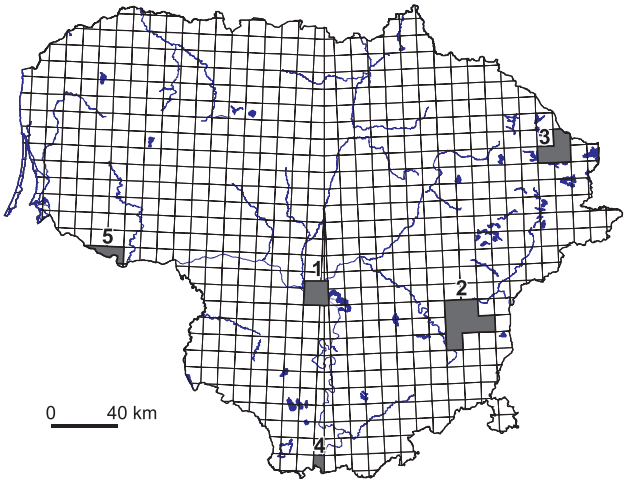

Fig. 2. The areas of faunistic research of the terrestrial molluscs in Lithuania until 1928
1 – Kaunas environs (along Nemunas), 2 – Vilnius environs (along Neris), 3 – Zarasai environs, 4 – Druskininkai environs, 5 – Panemunė

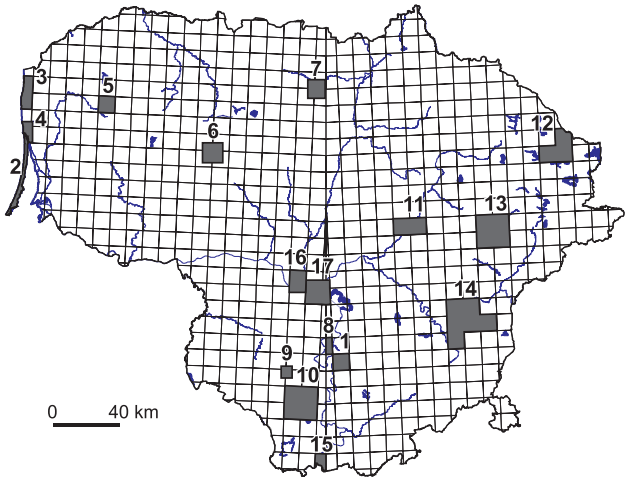

Fig. 3. The areas of faunistic research of the terrestrial molluscs in Lithuania from 1928 to 1960 (supervised by prof. P. ŠIVICKIS)
1 – Punia, 2 – Kuršju Nerija Spit, 3 – Šventoji and Palanga environs, 4 – Klajpeda environs, 5 – Plunge environs, 6 – Kelme environs, 7 – Pakruojis environs, 8 – Birštonas environs, 9 – Zuvintas reserve, 10 – Meteliai lakes, 11 – Ukmerge environs, 12 – Salakas environs, 13 – Moletai environs, 14 – Vilnius environs, 15 – Druskininkai environs, 16 – Raudondvaris (along Nemunas), 17 – Kaunas (along Nemunas)

tropods. ŠIVICKIS's malacological studies began in 1928. He specially invited SCHLESCH and KRAUSP for a two-week malacological expedition in Lithuania in 1937. After the expedition ŠIVICKIS continued the work with his assistants. All the results were summarized and published in 1960 in a book 'Lithuanian molluscs and their identification'. This book is the most significant faunistic work on non-marine molluscs of Lithuania. It contains data on 80 species of terrestrial snails and slugs, including information on shell variation, morphology, distribution and significance for man and nature. Also some paleontological data are given. All these studies were rather detailed and included the main parts of Lithuania (Fig. 3).

Since 1960 only some papers have been published in Lithuania, but almost all deal with the edible land snail *Helix pomatia* Linnaeus, 1758. Other faunistic malacological studies were sporadic and almost non-existent during the last 47 years. Only in 1997, a book 'The Lithuanian land gastropods' addressed to amateurs, was published by GURSKAS (1997). It includes a list of 79 land snail and slug species, with localities marked on UTM grid maps. GURSKAS's own material (from the years 1985–96) included 66 species of terrestrial molluscs. He found some species new to Lithuania: *Acicula polita* (Hartmann, 1840), *Arion silvaticus* Lohmander, 1937, *Deroceras sturanyi* (Simroth, 1894) and *Helicella obvia* (Menke, 1828). The data on other 13 species were cited after earlier authors (especially ŠIVICKIS 1960). However, GURSKAS did not summarize all the information obtained by previous authors (especially by ŠIVICKIS). He omitted five species: *Cochlicopa nitens* (Gallenstein, 1848), *Vertigo geyeri* Lindholm, 1925, *Vallonia enniensis* (Gredler, 1856), *Ena montana* (Draparnaud, 1801) and *Isognomostoma isognomostoma* (Schröter, 1784), which were mentioned by ŠIVICKIS (1960).

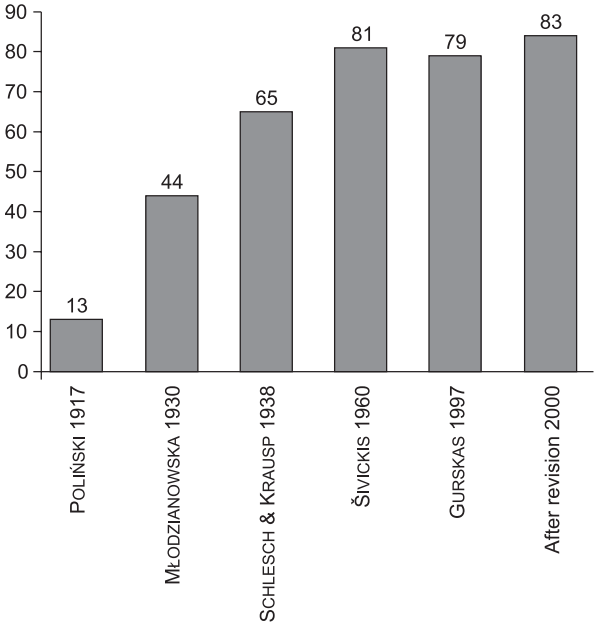

Fig. 4. Number of terrestrial molluscs species recorded in different periods in Lithuania

In all these studies there is a gradual increasing tendency in the number of terrestrial mollusc species known from Lithuania (Fig. 4); at present there exist records of 83 species.

COMPARATIVE ANALYSIS OF TERRESTRIAL MOLLUSCS IN LITHUANIA, LATVIA AND LOWLANDS OF POLAND

Lithuania, Latvia and Poland are all parts of the narrow belt adjoining the eastern coast of the Baltic Sea (Fig. 1). Data from this region are important since they extend the knowledge of distribution of some species of terrestrial molluscs in Europe and answer some biogeographical questions regarding the distribution of terrestrial molluscs in Europe (cf. KERNEY et al. 1983).

The total number of terrestrial snails and slugs in the compared areas is 121 species of 23 families, but some species are known only from old records and their occurrence in the region has not been recently confirmed. Only 71 species were found in all the three countries (Table 1). Lithuania and Latvia have 71 species in common, Lithuania and the lowlands of Poland share 79 species while Latvia and the lowlands of Poland 76.

Most species found only in one of the analysed countries are molluscs whose records need confirmation, are doubtful or may result from misidentification, such as: in Latvia *Chondrina avenacea* (Bruguière, 1792), *Ch. clienta* (Westerlund, 1883), *Trichia plebeia* (Draparnaud, 1805), in Lithuania *Vertigo genesii* (Gredler, 1856) *V. modesta* (Say, 1824) and *Aegopinella nitens* (Michaud, 1831), in Poland *Oxyloma dunkeri* (L. Pfeiffer, 1865) or *Eucobresia diaphana* (Draparnaud, 1805) and others (Table 1).

Some species which have not been recorded from Lithuania are present in the two adjacent countries – Latvia and Poland: *Cochlicopa lubricella* (Porro, 1838), *C. nitens* (Gallenstein, 1848), *Columella aspera* Waldén, 1966, *Oxychilus draparnaudi* (Beck, 1837) and *Helicigona lapicida* (Linnaeus, 1758). Considering this fact and the similar climatic and topographic conditions, it can be conjectured that all these species could also occur in Lithuania. Another group consists of species found in Poland and/or Lithuania but not recorded from Latvia: *Oxyloma sarsii* (Esmark, 1886), *Vertigo moulinsiana* (Dupuy, 1849), *Discus rotundatus* (O. F. Müller, 1774), *Arion silvaticus* Lohmander, 1937, *A. fasciatus* (Nilsson, 1822), *Limax flavus* Linnaeus, 1758, *Deroceras sturanyi* (Simroth, 1894). Considering the above-mentioned circumstances, they can be expected to occur also in Latvia.

Table 1. Comparison of lists of terrestrial molluscs of Lithuania (LT), Latvia (LV) and the lowlands of Poland (PL) based on literature data (ŠIVICKIS 1960, RIEDEL 1988, GURSKAS 1997, RUDZITE et al. 1997). + – species found after 1960, +* – species known only from old records (confirmation needed), ? – data doubtful or based on misidentification

No.	Species of land snails & slugs	PL	LT	LV
1.	*Acicula polita* (Hartmann, 1840)	+	+	+
2.	*Carychium minimum* O. F. Müller, 1774	+	+	+
3.	*C. tridentatum* (Risso, 1826)	+	+	+
4.	*Succinea oblonga* Draparnaud, 1801	+	+	+
5.	*S. putris* (Linnaeus, 1758)	+	+	+
6.	*Oxyloma elegans* (Risso, 1826)	+	+	+
7.	*O. dunkeri* (L. Pfeiffer, 1865)	?		
8.	*O. sarsii* (Esmark, 1886)	+	+	
9.	*Cochlicopa lubrica* (O. F. Müller, 1774)	+	+	+
10.	*C. lubricella* (Porro, 1838)	+		+
11.	*C. nitens* (Gallenstein, 1848)	+	+*	+
12.	*Pyramidula rupestris* (Draparnaud, 1801)	?		
13.	*Columella edentula* (Draparnaud,1805)	+	+	+
14.	*C. aspera* (Waldén, 1966)	+		+
15.	*Truncatellina cylindrica* (Férussac, 1807)	+	+*	+*
16.	*T. costulata* (Nilsson, 1822)	+		
17.	*Vertigo pusilla* (O. F. Müller, 1774)	+	+	+
18.	*V. antivertigo* (Draparnaud, 1801)	+	+	+
19.	*V. substriata* (Jeffreys, 1833)	+	+	+
20.	*V. pygmaea* (Draparnaud, 1801)	+	+	+
21.	*V. moulinsiana* (Dupuy, 1849)	+	+*	
22.	*V. modesta* (Say, 1824)		+*	
23.	*V. ronnebyensis* (Westerlund, 1871)	+	+*	+
24.	*V. genesii* (Gredler, 1856)		+*	
25.	*V. geyeri* Lindholm, 1925	+	+*	+
26.	*V. alpestris* Alder, 1837	+	+*	+*
27.	*V. angustior* Jeffreys, 1830	+	+	+
28.	*Sphyradium doliolum* (Bruguière, 1792)	?		
29.	*Granaria frumentum* (Draparnaud, 1801)	+		
30.	*Chondrina avenacea* (Bruguière, 1792)			+*
31.	*Ch. clienta* (Westerlund, 1883)			+*
32.	*Pupilla muscorum* (Linnaeus, 1758)	+	+	+
33.	*Vallonia costata* (O. F. Müller, 1774)	+	+	+
34.	*V. pulchella* (O. F. Müller, 1774)	+	+	+
35.	*V. enniensis* (Gredler, 1856)	+		+*
36.	*V. excentrica* Sterki, 1892	+	+	+*
37.	*V. declivis* Sterki, 1892	+		
38.	*Acanthinula aculeata* (O. F. Müller, 1774)	+	+	+
39.	*Spermodea lamellata* (Jeffreys, 1830)	+		
40.	*Chondrula tridens* (O. F. Müller, 1774)	+		
41.	*Ena montana* (Draparnaud, 1801)	+	+*	+
42.	*E. obscura* (O. F. Müller, 1774)	+	+	+
43.	*Punctum pygmaeum* (Draparnaud, 1801)	+	+	+
44.	*Helicodiscus singleyanus* (Pilsbry, 1890)	+		

45.	*Discus ruderatus* (Férussac, 1821)	+	+	+
46.	*D. rotundatus* (O. F. Müller, 1774)	+	+	
47.	*Arion rufus* (Linnaeus, 1758)	+	+*	
48.	*A. subfuscus* (Draparnaud, 1805)	+	+	+
49.	*A. hortensis* Férussac, 1819	+	+	+
50.	*A. circumscriptus* (Johnston, 1828)	+	+	+
51.	*A. silvaticus* Lohmander, 1937	+	+	
52.	*A. fasciatus* (Nilsson, 1822)	+	+	
53.	*A. intermedius* Normand, 1852	+		
54.	*Vitrina pellucida* (O. F. Müller, 1774)	+	+	+
55.	*Eucobresia diaphana* (Draparnaud, 1805)	+*		
56.	*Vitrea crystallina* (O. F. Müller, 1774)	+	+	+
57.	*V. contracta* (Westerlund, 1871)	+	+	+
58.	*Aegopinella pura* (Alder, 1830)	+	+	+
59.	*A. minor* (Stabile, 1864)	+		
60.	*A. nitens* (Michaud, 1831)		+*	
61.	*A. nitidula* (Draparnaud, 1805)	+	+*	+
62.	*Nesovitrea hammonis* (Ström, 1765)	+	+	+
63.	*N. petronella* (L. Pfeiffer, 1853)	+	+	+
64.	*Oxychilus alliarius* (Miller, 1822)	+		
65.	*O. translucidus* (Mortillet, 1854)	+		
66.	*O. cellarius* (O. F. Müller, 1774)	+	+	+*
67.	*O. draparnaudi* (Beck, 1837)	+		+
68.	*O. depressus* (Sterki, 1880)	?		
69.	*O. inopinatus* (Uličný, 1887)	+		
70.	*Zonitoides nitidus* (O. F. Müller, 1774)	+	+	+
71.	*Limax maximus* Linnaeus, 1758	+	+	+
72.	*L. cinereoniger* Wolf, 1803	+	+	+
73.	*L. flavus* Linnaeus, 1758	+	+	
74.	*Malacolimax tenellus* (O. F. Müller, 1774)	+	+	+
75.	*Lehmannia nyctelia* (Bourguignat, 1861)	+		
76.	*Lehmannia marginata* (O. F. Müller, 1774)	+	+	+
77.	*Lehmannia valentiana* (Férussac, 1823)	+		
78.	*Deroceras sturanyi* (Simroth, 1894)	+	+	
79.	*D. laeve* (O. F. Müller, 1774)	+	+	+
80.	*D. agreste* (Linnaeus, 1758)	+	+	+
81.	*D. reticulatum* (O. F. Müller, 1774)	+	+	+
82.	*Euconulus fulvus* (O. F. Müller, 1774)	+	+	+
83.	*E. alderi* (Gray, 1840)	+		
84.	*Cecilioides acicula* (O. F. Müller, 1774)	+		
85.	*Cochlodina laminata* (Montagu, 1803)	+	+	+
86.	*C. orthostoma* (Menke, 1830)	+	+	+
87.	*Ruthenica filograna* (Rossmässler, 1836)	+	+	+
88.	*Macrogastra ventricosa* (Draparnaud, 1801)	+	+	+
89.	*M. plicatula* (Draparnaud, 1801)	+	+	+
90.	*M. latestriata* (A. Schmidt, 1857)	+	+*	+
91.	*Clausilia bidentata* (Ström, 1765)	+	+*	+
92.	*C. dubia* (Draparnaud, 1805)	+	+	+
93.	*C. cruciata* (Studer, 1802)	+	+	+
94.	*C. pumila* C. Pfeiffer, 1828	+	+*	+
95.	*Laciniaria plicata* (Draparnaud, 1801)	+	+	+
96.	*Balea biplicata* (Montagu, 1803)	+	+*	+
97.	*B. perversa* (Linnaeus, 1758)	+		
98.	*Bulgarica cana* (Held, 1836)	+	+	+
99.	*Bradybaena fruticum* (O. F. Müller, 1774)	+	+	+
100.	*Candidula unifasciata* (Poiret, 1801)	+		
101.	*Helicella itala* (Linnaeus, 1758)	+		
102.	*Helicella obvia* (Menke, 1828)	+	+	+
103.	*Helicopsis striata* (O. F. Müller, 1774)	+		
104.	*Perforatella bidentata* (Gmelin, 1791)	+	+	+
105.	*P. rubiginosa* (A. Schmidt, 1853)	+	+	+
106.	*P. incarnata* (O. F. Müller, 1774)	+		
107.	*P. vicina* (Rossmässler, 1842)	+		
108	*P. umbrosa* (C. Pfeiffer, 1828)	+		
109.	*Trichia hispida* (Linnaeus, 1758)	+	+	+
110.	*T. plebeia* (Draparnaud, 1805)			+*
111.	*T. lubomirskii* (Ślósarski, 1881)	+		
112.	*Euomphalia strigella* (Draparnaud, 1801)	+	+	+
113.	*Arianta arbustorum* (Linnaeus, 1758)	+	+	+
114.	*Helicigona lapicida* (Linnaeus, 1758)	+		+*
115.	*Chilostoma faustinum* (Rossmässler, 1835)		+	
116.	*Isognomostoma isognomostoma* (Schröter, 1784)	+	+*	+
117.	*Cepaea vindobonensis* (Férussac, 1821)	+		
118.	*C. nemoralis* (Linnaeus, 1758)	+	+	+
119.	*C. hortensis* (O. F. Müller, 1774)	+	+	+
120.	*Helix pomatia* Linnaeus, 1758	+	+	+
121.	*H. lutescens* Rossmässler, 1837	+*		
	Total number of species: 121	110	83	79

DISCUSSION

All common species found in the Scandinavian Peninsula (KERNEY et al. 1983) were also recorded from other Baltic countries (genera: *Carychium, Succinea, Oxyloma, Cochlicopa, Columella, Vertigo, Pupilla, Vallonia, Acanthinula, Punctum, Arion, Vitrina, Vitrea,* etc.). Therefore, the species found in the Scandinavian Peninsula are likely to be found also in Lithuania at present. Such species are: *Columella aspera* Waldén, 1966, *Cochlicopa nitens* (Gallenstein, 1848), *Truncatellina cylindrica* (Férussac, 1807), *T. costulata*

(Nilsson, 1823), *Vertigo ronnebyensis* (Westerlund, 1871), *V. lilljeborgi* (Westerlund, 1871), *V. geyeri* Lindholm, 1925, *V. alpestris* Alder, 1838, *Zoogenetes harpa* (Say, 1824), *Arion rufus* (Linnaeus, 1758), *A. intermedius* Normand, 1852, *Aegopinella nitidula* (Draparnaud, 1805), *Oxychilus alliarius* (Miller, 1822), *O. draparnaudi* (Beck, 1837), *Cecilioides acicula* (O. F. Müller, 1774), *Clausilia bidentata* (Ström, 1765), *Balea biplicata* (Montagu, 1803), *B. perversa* (Linnaeus, 1758), *Helicigona lapicida* (Linnaeus, 1758). Some of these species have not been recorded from Lithuania, some other are known only from old records – they were not found by GURSKAS (1997). Furthermore, two of the species mentioned above – *V. lilljeborgi* and *Z. harpa* – could be discovered not only in Lithuania but also in Poland and Latvia.

It could be expected that some southern species known from the lowlands of Poland could be also found in Lithuania. This group might possibly include the following species: *Granaria frumentum* (Draparnaud, 1808), *Vallonia declivis* Sterki, 1892, *Chondrula tridens* (O. F. Müller, 1774), *Aegopinella minor* (Stabile, 1864), *Candidula unifasciata* (Poiret, 1801), *Helicopsis striata* (O. F. Müller, 1774), *Perforatella incarnata* (O. F. Müller, 1774), *P. umbrosa* (C. Pfeiffer, 1828), *Cepaea vindobonensis* (Férussac, 1821). It is less probable to find *Spermodea lamellata* (Jeffreys, 1830), *Helicodiscus singleyanus* (Pilsbry, 1890), *Eucobresia diaphana* (Draparnaud, 1805), *Oxychilus translucidus* (Mortillet, 1854), *O. inopinatus* (Ulicný, 1887), *Lehmania valentiana* (Férussac, 1823), *L. nyctelia* (Bourguignat, 1861), *Helicella itala* (Linnaeus, 1758), *Perforatella vicina* (Rossmässler, 1842), *Trichia lubomirskii* (Ślósarski, 1881) and *Helix lutescens* Rossmässler, 1837, as these species are rarely recorded and have local or southern distributions.

It is unlikely that *Chondrina avenacea* (Bruguière, 1792), *Ch. clienta* (Westerlund, 1883) or *Trichia plebeia* (Draparnaud, 1805) occur in Lithuania, as they are known in Latvia only from old records and are rare in southern and western Europe (KERNEY et al. 1983).

An uncertain situation of *Cochlicopa lubricella* (Porro, 1838) and *C. nitens* (Gallenstein, 1848) in Lithuania requires a revision of the whole material. It cannot be excluded that some material recorded as *C. lubrica* (O. F. Müller, 1774) actually represents one of the above mentioned species.

A total of 83 species have been recorded from Lithuania till now. However, two species whose occurrence is doubtful, i.e. *Vertigo genesii* (Gredler, 1856) and *Aegopinella nitens* (Michaud, 1831), should be excluded from the Lithuanian checklist because they are known only from old records and have not been found in adjacent parts of Latvia, Poland and/or in the Scandinavian Peninsula. Thus, the current Lithuanian list includes 81 species of terrestrial molluscs. The comparative analysis indicates that 20 more species could be found in Lithuania and two of them could be also expected in Poland and Latvia: *Vertigo lilljeborgi* (Westerlund, 1871) and *Zoogenetes harpa* (Say, 1824). The other species are: *Cochlicopa lubricella* (Porro, 1838) *Columella aspera* Walden, 1966, *Truncatellina costulata* (Nilsson, 1823), *Granaria frumentum* (Draparnaud, 1808), *Vallonia declivis* Sterki, 1892, *Chondrula tridens* (O. F. Müller, 1774), *Arion intermedius* Normand, 1852, *Aegopinella minor* (Stabile, 1864), *Oxychilus alliarius* (Miller, 1822), *O. draparnaudi* (Beck, 1837), *Cecilioides acicula* (O. F. Müller, 1774), *Balea perversa* (Linnaeus, 1758), *Candidula unifasciata* (Poiret, 1801), *Perforatella incarnata* (O. F. Müller, 1774), *P. umbrosa* (C. Pfeiffer, 1828), *Helicopsis striata* (O. F. Müller, 1774), *Helicigona lapicida* (Linnaeus, 1758) and *Cepaea vindobonensis* (Férussac, 1821).

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