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MOLLUSC FAUNA OF THE RYCHLEBSKÉ HORY (CZECH REPUBLIC)

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ABSTRACT: 120 mollusc species (50% of the Czech Republic mollusc fauna) were recorded from the Rychlebské Hory (Czech Republic, Silesia), as a result of the recent malacological research of 33 sites, combined with earlier published and unpublished data. The most diverse communities were those of forest valleys and old limestone quarries. New isolated sites of *Helicella itala* (Linnaeus) (the easternmost occurrence) and *Chondrina clienta* (Westerlund) were found. Based on the revision of Helicellinae of this region we think that *Cernuella neglecta* (Draparnaud) should be deleted from the list of Polish gastropods. The previous single record was a result of confusion with *H. itala*. The ecological and zoogeographical composition of the mollusc fauna confirms the transitory character of the Rychlebské Hory.

KEY WORDS: Rychlebské Hory, Czech Republic, Mollusca, *Helicella itala, Chondrina clienta*

INTRODUCTION

The small mountain range of Rychlebské Hory is located on the border between the Czech Republic and Poland, in the north-eastern part of the Czech Silesia. It adjoins the Králický Sněžník Mts in the south-west and the Hrubý Jeseník Mts in the south-east. The Marginal Sudetic Fault of the Rychlebské Hory forms the border between the Eastern and Western Sudetes (Fig. 1). The Rychlebské Hory tower above the Nysa Kłodzka valley (c. 350 m a.s.l.) to the altitude of about 1,000 m a.s.l., and consist of two parts – the longer north-western and the shorter north-eastern.

The geology of the area is quite diverse; the bedrock is made up of a complex of crystalline shales, syenite and granodiorite in the north-east and basic metamorphites such as amphibolites or gabbro at the eastern margin. The granodiorite of the Javornicko-Vidnavská upland, which is covered by relics of moraine materials and loess, is situated in the east. The soils range from extremely favourable to extremely hostile to molluscs. The Jesenický karst near Vápenná and Špičák, built of crystalline limestone, is very favourable for gastropods. The Rychlebské Hory are drier and warmer than the Hrubý Jeseník Mts (mean annual temperatures 4–7°C and mean rainfall 800–1,000 mm).

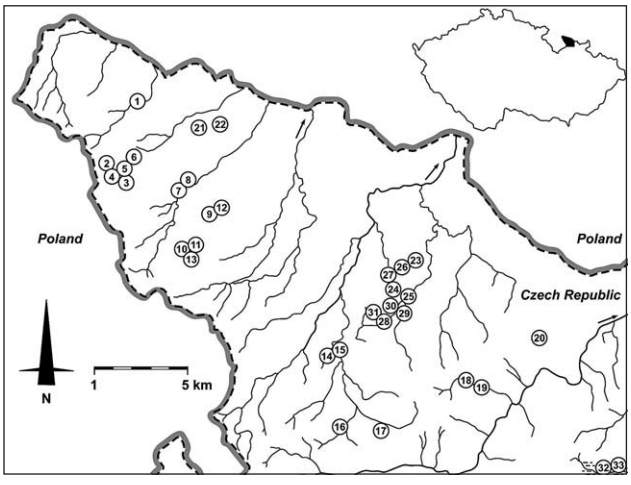

Fig.1. Location of the Rychlebské Hory with collecting sites

METHODS

Combined standard samples of litter and topsoil were collected from each locality, to a total volume of ca. 5 litres. The samples were dried, washed, and organic material was – after repeated drying – sorted into separate size categories. Some samples from very humid woodland floodplains were washed on a bowl-shaped sieve (mesh size 0.5 mm), the coarse plant matter was removed and the molluscs were extracted by hand-sorting (HORSÁK 2003). Slugs and dendrophilous snails were collected by direct searching in the field, because they do not usually occur in litter samples. Freshwater molluscs were collected with a bowl-shaped sieve (mesh size 0.5 mm) from aquatic vegetation or sediments. Molluscs from the samples were sorted and identified (anatomically in the case of some members of Planorbidae, Lymnaeidae, Arionidae, Agriolimacidae and *Aegopinella*) under a stereomicroscope. The nomenclature follows JUŘIČKOVÁ at al. (2001). About one third of the material (collected by T. K. MALTZ and B. M. POKRYSZKO) is deposited at the Natural History Museum, Wrocław University; the remaining specimens are in individual collections of the other authors.

HISTORY OF RESEARCH

Though the Rychlebské Hory have never been the focus of malacologists' interest, some occasional data exist. The earliest records were published by REINHARDT (1874) and VOHLAND (1909). The occurrence of *Margaritifera margaritifera* (Linnaeus) in the Černý Potok brook near Vidnava was monitored by J. PETRBOK, S. MÁCHA and J. BRABENEC (unpublished; BÁRTÍK & DYK 1955, BERAN 2003). S. MÁCHA investigated the reserve Vidnavské Mokřiny (unpublished; BERAN 2003). J. BRABENEC and S. MÁCHA collected *Arion rufus* and *Xerolenta obvia* near Žulová. Molluscs of some limestone quarries were studied by HUDEC (1950) and FLASAR (1959). The locality of Smrčník near Dolní Lipová was investigated by LOŽEK (1955). The most important paper was published by BRABENEC (1954). He collected 66 species in nine localities in the Rychlebské Hory. Some of these data were summarized by MÁCHA (1997). L. BERAN partly investigated the freshwater molluscs of the Jeseníky and Rychlebské Hory (BERAN 2003). Altogether 86 species were recorded from the area before the present study.

LOCALITIES

The locality data below are as follows: locality number; locality name; altitude; mapping grid code (BUCHAR 1982); geographical co-ordinates; date of collection; collectors' names (AM – A. MÍKOVCOVÁ, BP – B. M. POKRYSZKO, DS – D. SADÁK, JH – J. Č. HLAVÁČ, JS – J. SPÍŠEK, FL – F. LAŠTOVIC, LB – L. BERAN, LD – L. DVOŘÁK, LJ – L. JUŘIČKOVÁ, LK – L. KOLOUCH, MaH – M. HRABÁKOVÁ, MH – M. HORSÁK, MM – M. MAŇAS, PT – P. TUČKOVÁ, TK – T. KOŘÍNKOVÁ, TM – T. K. MALTZ). The localities are shown on the map (Fig.1).

RYCHLEBSKÉ HORY MTS.

1. Horní Hostíce (near Javorník), Hoštické údolí (= Kotlinka), 2 km SSW Horní Hoštíce; 380–430 m a.s.l.; 5567; 50°24'25"N; 16°57'09"E; 12.6.2004; LJ, MH, JH, LD, BP, TM, AM, DS
2. Travná – surroundings of spring; 485 m a.s.l.; 5667; 50°22'40"N; 16°55'41"E; 12.6.2004; PT, TK, MM, JS, FL
3. Travná intravilán – brook; 480 m a.s.l.; 5667; 50°22'14"N; 16°56'34"E; 12.6.2004; PT, TK, MM, JS, FL
4. Travná, brook in Travná; 480 m a.s.l.; 5667; 50°22'14"N; 16°56'34"E; 12.6.2004; LB, TK, MM, PT, JS, FL
5. Travná, small pond in the garden in Travná; 480 m a.s.l.; 5667; 50°22'25"N; 16°56'31"E; 12.6.2004; LB, TK, MM, PT, JS, FL
6. Travná, a tributary of the pond in Travná; 481 m a.s.l.; 5667; 50°22'28"N; 16°56'28"E; 12.6.2004; LB, TK, MM, PT, JS, FL
7. Javorník, castle Rychleby in Račí údolí valley, 3.3 km NNW Javorník; 400 m a.s.l.; 5667; 50°21'51"N; 16°58'56"E; 11.6.2004; LJ, MH, JH, MaH, BP, TM
8. Javorník, Račí údolí valley, 3 km NNW Javorník; 350 m a.s.l.; 5667; 50°22'03"N; 16°59'22"E; 11.6.2004; LJ, MH, JH, MaH, BP, TM
9. Nové Vilémovice, Střední potok brook in Nové Vilémovice; 665 m a.s.l.; 5667, 50°21'07"N; 17°00'16"E; 12.6.2004; LB, TK, MM, PT, JS, FL
10. Nové Vilémovice, smáli pond and míre in Nové Vilémovice on the leň riverside; 665 m a.s.l.; 5667; 50°20'14"N; 16°59'18"E°; 12.6.2004; LB, TK, MM, PT, JS, FL

11. Nové Vilémovice, small pond in N on the right riverside, 665 m a.s.l.; 5667; 50°20'06"N; 16°59'15"E; 12.6.2004; LB, TK, MM, PT, JS, FL
12. Nové Vilémovice, mire in floodplain of the Střední potok brook between Nové Vilémovice and Uhelná, 430 m a.s.l.; 5667, 50°21'08"N; 17°00'19"E; 12.6.2004; LB, TK, MM, PT, JS, FL
13. Nové Vilémovice – vegetation of brook bank; 665 m a.s.l.; 5667; 50°20'04"N, 16°59'17"E; 12.6.2004; PT, TK, MM, JS, FL
14. Vápenná – old limestone quarries near W part of the village; 450–520 m a.s.l.; 5768; 50°16'54"N; 17°05'27"E; 12.6.2004; LJ, MH, JH, BP, TM, AM, DS
15. Vápenná, ruderal grassland near gas station; 400 m a.s.l.; 5768; 50°17'00"N; 17°05'55"E; 11.6.2004; MaH, LJ, MH, JH, LD, BP
16. Ztracené údolí valley near Vápenná; 500 m a.s.l.; 5768; 50°14'49"N; 17°06'01"E; 12.6.2004; LD, MaH, LK, JS, FL
17. National Nature Reserve Jeskyně Na Pomezí; 650–530 m a.s.l.; 5768; 50°14'42"N; 17°07'46"E; 12.6.2004; LD, MaH, LK, JS, FL
18. Lubina valley NE Jeseník upper part; 550 m a.s.l.; 5769; 50°16'06"N; 17°11'39"E; 13.6.2004; MaH, PT
19. Lubina valley NE Jeseník lower part; 480 m a.s.l.; 5769; 50°15'51"N; 17°12'30"E; 13.6.2004; MaH, PT
20. Písečná National Nature Reserve, Na Špičáku, 1.3 km N of village; 450–480 m a.s.l., 5769; 50°17'15"N; 17°15'04"E; 13.6.2004; LJ, MH, JH, BP, TM, AM, DS

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21. Javorník, ruderal patch around gardens near the way from Javorník to Bílý Potok; 300 m a.s.l.; 5668; 50°23'38"N; 16°59'56"E; 11.6.2004; MaH, JH, LD
22. Javorník, ruderal patch near railway station; 275 m a.s.l.; 5668; 50°23'43"N; 17°00'52"E; 11.6.2004; MH, JH, LD
23. Černá Voda, a pond on the Plavný potok brook near the road N from Velký rybník pond, 310 m a.s.l.; 5668; 50°19'28"N; 17°09'05"E; 12.6.2004; LB, TK, MM, PT, JS, FL
24. Černá Voda, Velký rybník pond N Černá Voda; 320 m a.s.l.; 5668; 50°19'04"N; 17°08'31"E; 12.6.2004; LB, TK, MM, PT, JS, FL
25. Černá Voda, a pond in the centre of village; 340 m a.s.l; 5668; 50°18'28"N; 17°08'52"E; 12.6.2004; TK, MM, PT, JS, FL
26. Černá Voda, mire under the pond dam of the pond on Plavný potok brook N Velký rybník pond; 310 m a.s.l.; 5668; 50°19'28"N; 17°09'06"E; 12.6.2004; LB, TK, MM, PT, JS, FL
27. Černá Voda, mire under the pond dam of Velký rybník pond; 340 m a.s.l.; 5668; 50°19'04"N; 17°08'29"E; 12.6.2004; LB, TK, MM, PT, JS, FL
28. Černá Voda, large granite quarry near Černý potok brook l km SW Černá Voda; 340 m a.s.l.; 5768; 50°17'53"N; 17°08'02"E; 12.6.2004; LB, TK, MM, PT, JS, FL
29. Černá Voda, Černý potok brook l km SW Černá Voda; 340 m a.s.l.; 5768; 50°17'49"N; 17°08'02"E; 12.6.2004; LB, TK, MM, PT, JS, FL
30. Černá Voda, floodplain of Černý potok brook l km SW Černá Voda; 340 m a.s.l.; 5768; 50°17'49"N; 17°08'05"E; 12.6.2004; LB, TK, MM, PT, JS, FL
31. Žulová, quarry on the right of the road from Žulová to Černá Voda; 350 m a.s.l.; 5768; 50°18'07"N; 17°07'41"E; 12.6.2004; LB, TK, MM, PT, JS, FL

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32. Rejvíz, Rejviz National Nature Reserve, Velké mechové jezírko lake, near the way, 770 m a.s.l.; 5749; 50°13'23"N; 17°17'47"E; 10.6.2004; LJ, MH, JH, BP, TM, MaH, TK
33. Rejvíz, channel in the meadow on NE part of the Rejvíz National Nature Reserve, 740 m a.s.l.; 5749; 50°13'40"N; 17°18'57"E; 11.6.2004; LB

RESULTS

Altogether 120 mollusc species were found in 33 localities – 17 species of freshwater snails, 7 species of bivalves and 94 species of terrestrial gastropods (Table 1). Altogether 50% of the Czech Republic mollusc fauna were found in the Rychlebské Hory.

The highest species diversity was found in the mollusc communities of forest valleys and old quarries. About 45 species occurred per each locality in the forest valleys, including many rare snails such as *Platyla polita, Vertigo alpestris, Discus perspectivus, Cochlodina orthostoma, Ruthenica filograna, Clausilia cruciata, Macrogastra tumida, Bulgarica cana, Eucobresia nivalis* etc. Open habitats of old limestone quarries are very favourable for many open-country species or rock- and talus-dwellers. In these habitats about 30 species occurred in some localities, with very rare snails, such as *Chondrina clienta* and *Helicella itala* (see below), as well as *Sphyradium doliolum, Oxychilus depressus* and common open-country species (*Vallonia pulchella, V. costata, Truncatellina cylindrica, Cochlicopa lubricella*). Common wetland species and *Euconulus praticola* had a very fragmented occurrence in humid habitats.

Table 1. List of mollusc species recorded from the Rychlebské Hory. 1–33 numbers of localities; × – species present in locality; S – subfossil shells; * near the road ulová – Černá Voda, 13.9.1969, S. MÁCHA lgt. (rev. M. HORSÁK), LB – BERAN 2003; F – FLASAR 1959; H – HUDEC 1950; JB – BRABENEC 1954; agg. – aggregate species

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	LB	F	H	JB
Bythinella austriaca (von Frauenfeld, 1857) agg.																																		×			×
Valvata cristata O. F. Müller, 1774																																		×			
Acroloxus lacustris (Linnaeus, 1758)																																		×			
Platyla polita (Hartmann, 1840)								×									×																				
Galba truncatula (O. F. Müller, 1774)				×					×			×					×									×							×	×			×
Stagnicola corvus (Gmelin, 1791)																																		×			
Radix auricularia (Linnaeus, 1758)																							×											×			
Radix peregra s. str. (O. F. Müller, 1774)				×	×				×	×	×	×											×	×		×	×				×		×	×			×
Radix ovata (Draparnaud, 1805)																																		×			
Lymnaea stagnalis (Linnaeus, 1758)																																		×			
Aplexa hypnorum (Linnaeus, 1758)																																		×			
Anisus leucostoma (Millet, 1813)									×	×	×												×							×			×	×			
Gyraulus albus (O. F. Müller, 1774)																							×											×			
Gyraulus crista (Linaeus, 1758)																							×	×										×			
Hippeutis complanatus (Linnaeus, 1758)																							×	×		×	×							×			
Planorbarius corneus (Linnaeus, 1758)																																		×			
Ancylus fluviatilis O. F. Müller, 1774	×			×				×	×																			×	×					×			×

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	LB	F	H	JB
Ferrissia clessiniana (Jickeli, 1882)																																		×			
Carychium minimum O. F. Müller, 1774								×																			×										×
Carychium tridentatum (Risso, 1826)	×						×	×								×	×	×	×																		×
Cochlicopa lubrica (O. F. Müller, 1774)	×		×						×							×			×		×	×					×							×	×	×
Cochlicopa lubricella (Rossmässler, 1835)														×						×																×	
Acanthinula aculeata (O. F. Müller, 1774)							×	×									×																				×
Vallonia pulchella (O. F. Müller, 1774)							×							×								×														×	
Vallonia costata (O. F. Müller, 1774)							×							×		×			×	×	×	×															
Columella edentula (Draparnaud, 1805)	×						×	×						×			×	×	×																		×
Truncatellina cylindrica (A. Férussac, 1807)														×						×																	
Vertigo pusilla O. F. Müller, 1774	×						×		×								×		×																		×
Vertigo alpestris Alder, 1838							×													×																	
Vertigo substriata (Jeffreys, 1833)	×							×																													×
Vertigo pygmaea (Draparnaud, 1801)																																					×
Vertigo antivertigo (Draparnaud, 1801)																																					×
Sphyradium doliolum (Bruguière, 1792)														×																					×		
Chondrina clienta (Westerlund, 1883)														×																							
Ena montana (Draparnaud, 1801)	×		×				×	×						×		×	×	×			×							×							×		×

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	LB	F	H	JB
Merdigera obscura (O. F. Müller, 1774)			×				×																														×
Cochlodina laminata (Montagu, 1803)	×						×	×						×		×	×		×	×																
Cochlodina commutata (Rossmässler, 1836)																																					×
Cochlodina orthostoma (Menke, 1828)							×							×			×			×																×
Clausilia dubia (Draparnaud, 1805)							×	×	×								×			×															×		×
Clausilia cruciata (Studer, 1820)								×																													×
Clausilia pumila C. Pfeiffer, 1828	×																																				×
Macrogastra ventricosa (Draparnaud, 1801)	×						×	×	×							×	×	×	×																		×
Macrogastra plicatula (Draparnaud, 1801)							×	×								×	×			×																×	×
Macrogastra tumida (Rossmässler, 1836)	×															×	×																				×
Laciniaria plicata (Draparnaud, 1801)							×							×			×																		×	×	×
Alinda biplicata (Montagu, 1803)	×	×	×				×	×	×				×	×		×	×	×	×	×		×			×		×	×							×	×	×
Bulgarica cana (Held, 1836)																×																					×
Vestia turgida (Rossmässler, 1836)																																					×
Ruthenica filograna (Rossmässler, 1836)	×							×								×																					×
Succinea putris (Linnaus, 1758)		×	×						×				×						×								×										×
Oxyloma elegans (Risso, 1826)																																					×
Succinella oblonga (Draparnaud, 1801)			×						×				×			×	×										×										

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	LB	F	H	JB
Discus ruderatus (A. Férussac, 1821)		×																														×				×	×
Discus rotundatus (O. F. Müller, 1774)	×		×				×	×	×				×	×		×	×	×		×							×	×							×	×	×
Discus perspectivus (Megerle von Mühlfeld, 1816)								×																													×
Punctum pygmaeum (Draparnaud, 1801)	×						×	×						×			×																				
Daudebardia rufa (Draparnaud, 1805)	×																																		×		
Daudebardia brevipes (Draparnaud, 1805)																				×																	
Zonitoides nitidus (O. F. Müller, 1774)													×						×								×										×
Perpolita hammonis (Ström, 1765)	×												×			×	×		×		×																×
Aegopinella minor (Stabile, 1864)			×											×						×																	
Aegopinella nitens (Michaud, 1831)	×							×									×	×	×																×		
Aegopinella pura (Alder, 1830)	×							×					×			×	×	×	×																		×
Vitrea diaphana (Studer, 1820)								×								×	×	×																	×		×
Vitrea crystallina (O. F. Müller, 1774)	×							×																													×
Vitrea subrimata (Reinhardt, 1871)	×							×								×	×																			×
Oxychilus cellarius (O. F. Müller, 1774)							×	×					×	×			×			×								×							×	×	×
Oxychilus draparnaudi (Beck, 1837)														×								×															
Oxychilus depressus (Sterki, 1880)														×																					×		
Vitrina pellucida (O. F. Müller, 1774)	×		×				×							×		×	×	×	×																		×

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	LB	F	H	JB
Eucobresia nivalis (Dumont et Mortillet, 1854)	×							×									×		×																	×
Eucobresia diaphana (Draparnaud, 1805)																	×											×									
Semilimax semilimax (J. Férussac, 1802)	×							×								×	×	×	×																		×
Euconulus fulvus (O. F. Müller, 1774)	×						×	×										×																		×
Euconulus praticola (Reinhardt, 1883)									×																												
Arion rufus (Linnaeus, 1758)		×															×				×																
Arion lusitanicus Mabille, 1868			×														×		×	×		×															
Arion subfuscus (Draparnaud, 1805) agg.	×						×	×					×			×	×	×		×							×	×				×				×	×
Arion silvaticus Lohmander, 1937	×						×	×						×		×	×	×		×						×	×	×									
Arion distinctus Mabille, 1868			×						×					×			×											×									
Arion fasciatus (Nilsson, 1823)																					×																
Limax cinereoniger Wolf, 1803	×						×	×						×		×	×	×		×							×					×					×
Limax maximus Linnaeus, 1758																				×	×														×		
Lehmannia marginata (O. F. Müller, 1774)	×						×	×	×							×	×	×		×								×				×					×
Bielzia coerulans (M. Bielz, 1851)	×																																				×
Malacolimax tenellus (O. F. Müller, 1774)								×									×																				×
Deroceras praecox Wiktor, 1966	×							×								×	×	×	×																		
Deroceras laeve (O. F. Müller, 1774)																											×										

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	LB	F	H	JB
Deroceras sturanyi (Simroth, 1894)																					×																
Deroceras reticulatum (O. F. Müller, 1774)																					×																
Boettgerilla pallens Simroth, 1912								×									×																				
Fruticicola fruticum (O. F. Müller, 1774)									×					×		×	×			×		×					×	×								×	×
Trichia hispida (Linnaeus, 1758)			×						×				×		×		×	×	×		×	×			×			×									
Trichia villosula (Rossmässler, 1838)																																					×
Petasina unidentata (Draparnaud, 1805)								×						×		×	×			×															×	×	×
Plicuteria lubomirskii (Ślósarski, 1881)																																					×
Perforatella bidentata (Gmelin, 1791)																												×									
Urticicola umbrosus (C. Pfeiffer, 1828)																																					×
Monachoides incarnatus (O. F. Müller, 1774)	×	×	×				×	×						×		×	×	×	×	×						×	×								×	×	×
Monachoides vicinus (Rossmässler, 1842)	×													×		×	×	×	×	×															×		×
Helicella itala (Linnaeus, 1758)														×																							
*Xerolenta obvia** (Menke, 1828)																																					
Isognomostoma isognomostomos (Schröter, 1784)	×							×						×		×	×	×	×																	×	×
Causa holosericea (Studer, 1820)	×							×									×	×																			×
Faustina faustina (Rossmässler, 1835)														×			×			×															×		×
Helicigona lapicida (Linnaeus, 1758)		×	×				×	×						×		×	×			×								×							×	×	×

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	LB	F	H	JB
Arianta arbustorum (Linnaeus, 1758)	×		×				×	×	×					×		×	×	×	×	×								×				×		×	×	×
Cepaea hortensis (O. F. Müller, 1774)			×										×	×			×		×	×		×						×						×	×	×
Cepaea vindobonensis (A. Férussac, 1821)																				S																	
Helix pomatia Linnaeus, 1758	×	×	×				×	×					×	×	×	×	×	×	×	×	×	×			×		×	×						×	×	×	×
Anodonta anatina (Linnaeus, 1758)																																		×			
Sphaerium corneum (Linnaeus, 1758) agg.																																		×			
Musculium lacustre (O. F. Müller, 1774)																																		×			
Pisidium milium Held, 1836																											×							×			
Pisidium subtruncatum Malm, 1855																												×	×					×			
Pisidium nitidum Jenyns, 1832																																		×			
Pisidium obtusale (Lamarck, 1818)																																		×			
Pisidium personatum Malm, 1855						×					×	×																						×			
Pisidium casertanum (Poli, 1791)				×					×	×	×	×														×		×	×				×	×			

Galba truncatula, Radix peregra s. str.*, Ancylus fluviatilis* and *Pisidium casertanum* often inhabit springs and smaller brooks and belong to the most common aquatic molluscs in this territory. Ponds and various water bodies originated by mining enrich the aquatic malacofauna of this area with e.g. *Gyraulus albus, G. crista* and *Hippeutis complanatus*. In comparison with the previous research (BERAN 2003), which documented a total of 26 aquatic species, fewer aquatic molluscs were found because the previous research included also the periphery of the mountains, where conditions for aquatic molluscs are more suitable.

DISCUSSION

Some localities including important indicator species were revisited. *Margaritifera margaritifera* in the Černý potok brook near Vidnava had become extinct, like other small populations of the pearl mussel in the Czech Republic (BERAN 2002). Two Carpathian species, which had been collected by BRABENEC (1954) – *Plicuteria lubomirskii* and *Trichia villosula*, were not confirmed. No *Cochlodina commutata* was found in the Rychleb castle ruins, though BRABENEC (1954) had reported on an isolated population from the site. The specimens collected by J. BRABENEC and deposited in the National Museum of Prague are only empty shells. The population of *C. commutata* in this locality was probably episodic. We failed to confirm the occurrence of *Vestia turgida* in the Hoštické údolí valley (VOHLAND 1909 and BRABENEC 1954), even though a number of favourable habitats occurred in this locality. Surprisingly, the common species *Cochlodina laminata* had not been collected by BRABENEC (1954).

Chondrina clienta, a species of limestone rock faces, occurs in karstic areas of the Eastern Alps, Carpathians, Balkans and Caucasus as well as in minor isolated areas in Moravia, Poland (Kraków-Częstochowa Upland) and the Öland and Gotland Islands. The locality in the Rychlebské Hory represents its another really isolated occurrence (Fig. 2).

The present record of *Helicella itala* is the first in the Czech Silesia. The appearance of this West-European species in Central Europe is relatively recent (probably historical). The distribution of *H. itala* in the Czech Republic is restricted to several isolated patches outside the main range (Fig. 3) (PFLEGER 1980). The occurrence of *Cernuella neglecta* in the single locality in Poland (Góra Goliniec quarry – Łączno

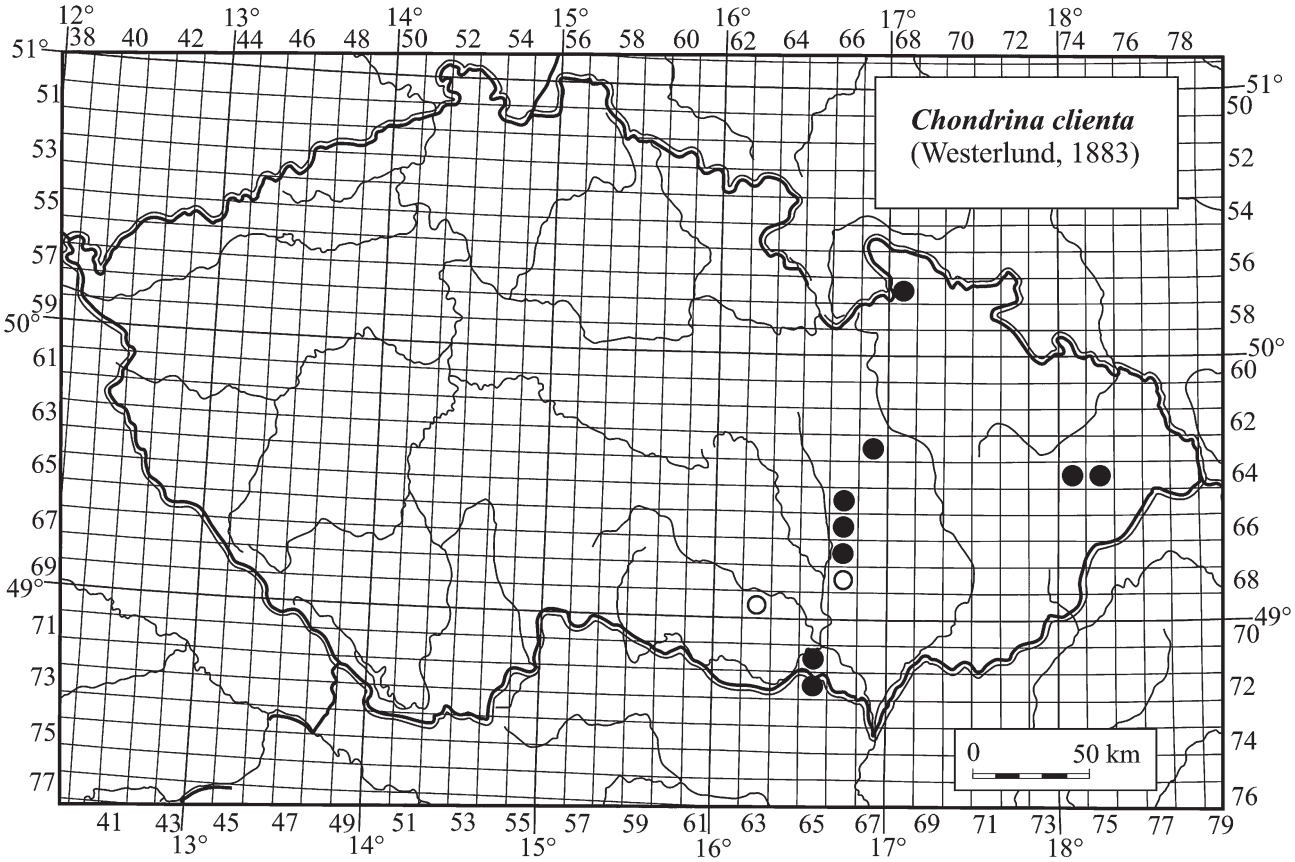

Fig. 2. Distribution of *Chondrina clienta* in the Czech Republic

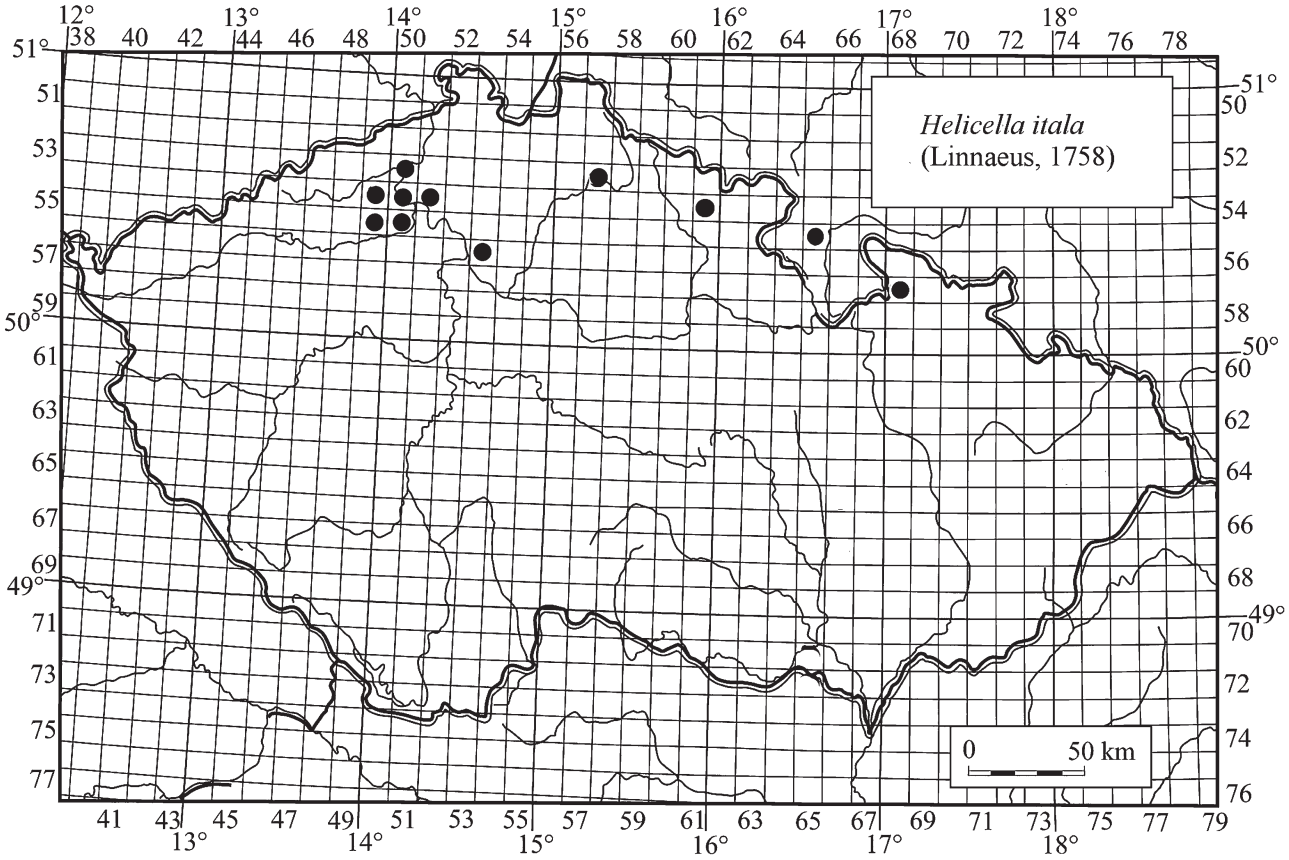

Fig. 3. Distribution of *Helicella itala* in the Czech Republic

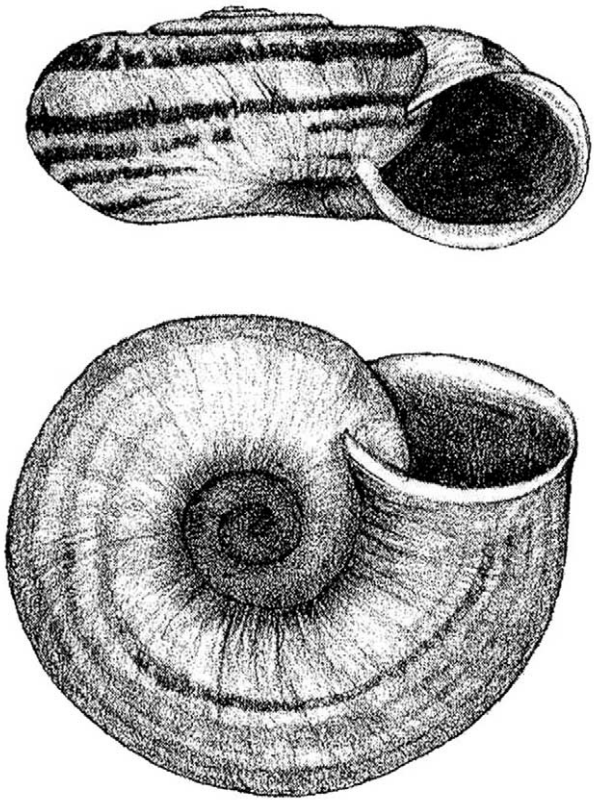

Fig. 4. Shell of "*Cernuella neglecta*" from Poland (after WIKTOR 2004)

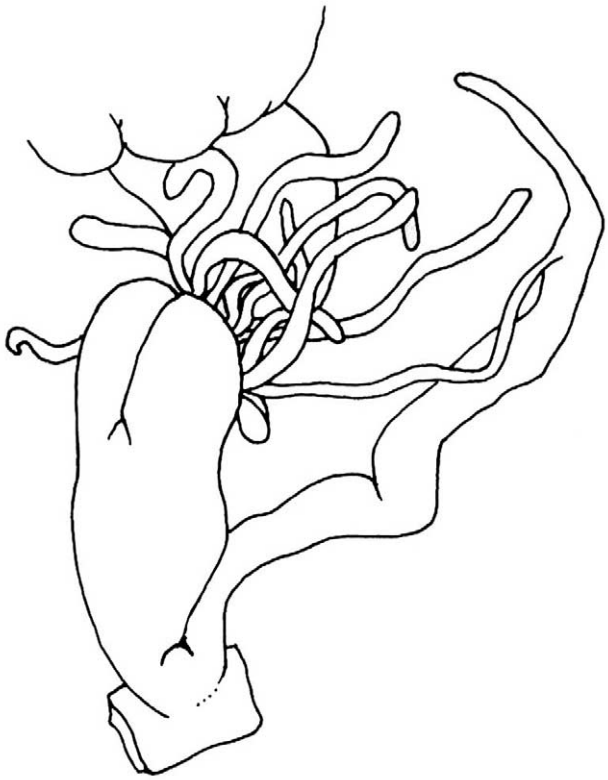

Fig. 5. Reproductive organs of "*Cernuella neglecta*" from Poland (after WIKTOR 2004)

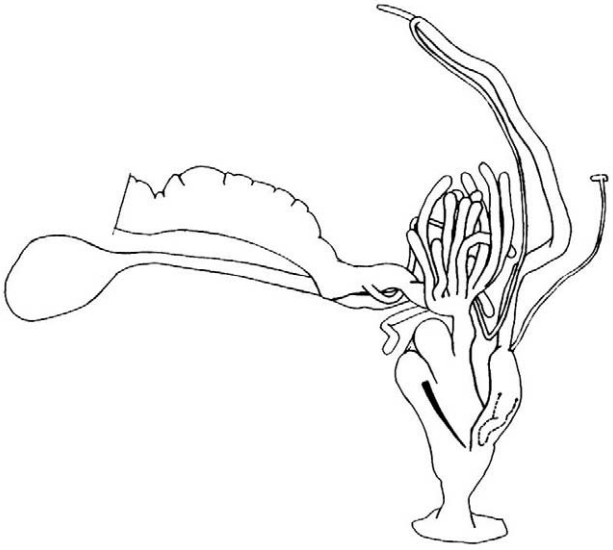

Fig. 6. Reproductive organs of *Cernuella neglecta* (after GITTENBERGER et al. 1970)

near Kłodzko) was published by WIKTOR (1964, 2004), with figures of the shell and reproductive anatomy of the specimen form this site (Figs 4, 5). The comparison of WIKTOR's figure with the anatomy of *Cernuella neglecta* – Fig. 6 (GITTENBERGER et al. 1970) shows differences mainly in the length of the flagellum and formation of dart sacs. Also the shell shows a number of differences (Fig. 7). The published figures of the reproductive organs and shells of the Polish specimen (Figs 4, 5) are clearly similar to those of *H. itala* (Figs 8, 9). The comparison of characters of the Czech populations of both species (PFLEGER 1980), with the Polish specimens (WIKTOR 2004) and population from the Rychlebské Hory is

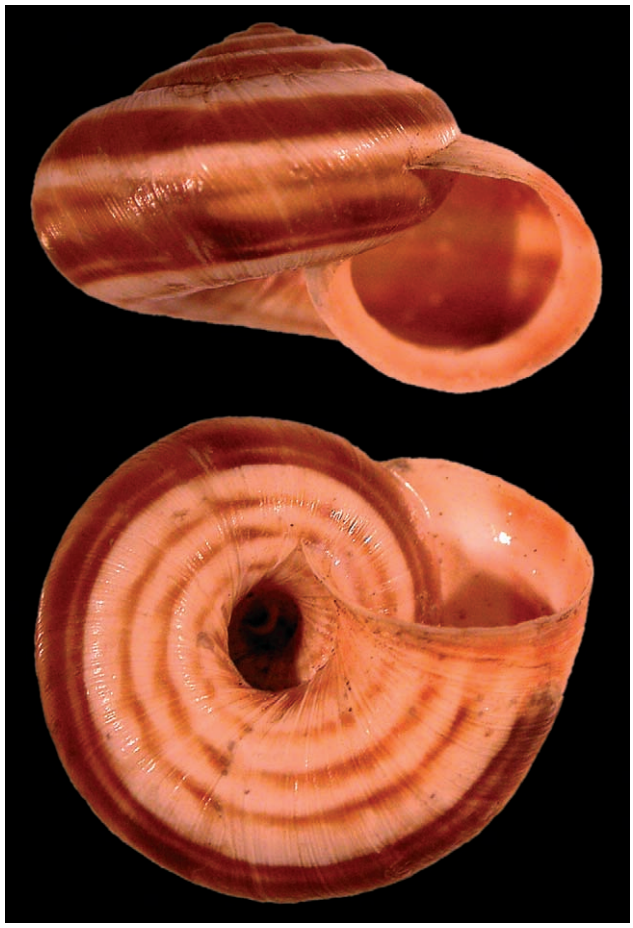

Fig. 7. Shell of *Cernuella neglecta* from Ovčárky near Kolín, Bohemia, S. MÁCHA lgt. 13.8.1957, photo M. HORSÁK

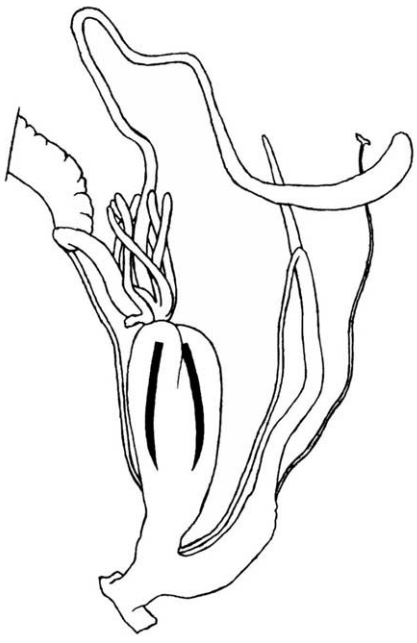

Fig. 8. Reproductive organs of *Helicela itala* (after GITTENBERGER et al. 1970)

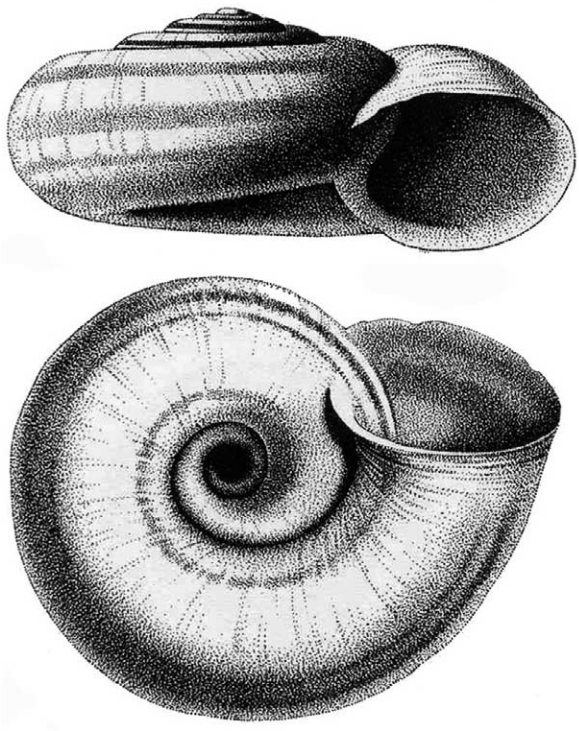

Fig. 9. Shell of *Helicella itala* (after GITTENBERGER et al. 1970)

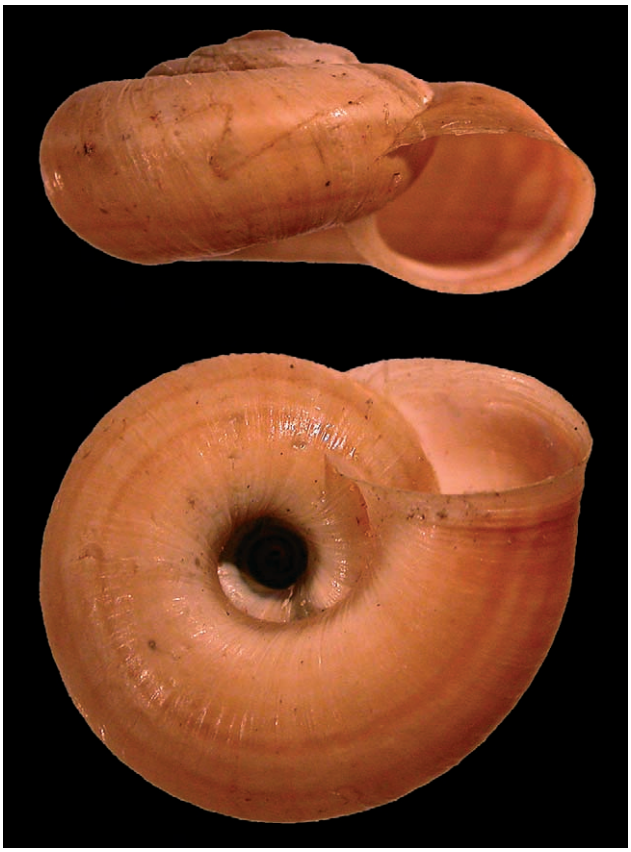

Fig. 10. Shell of *Helicella itala* from ulová, Rychlebské Hory, photo M. HORSÁK

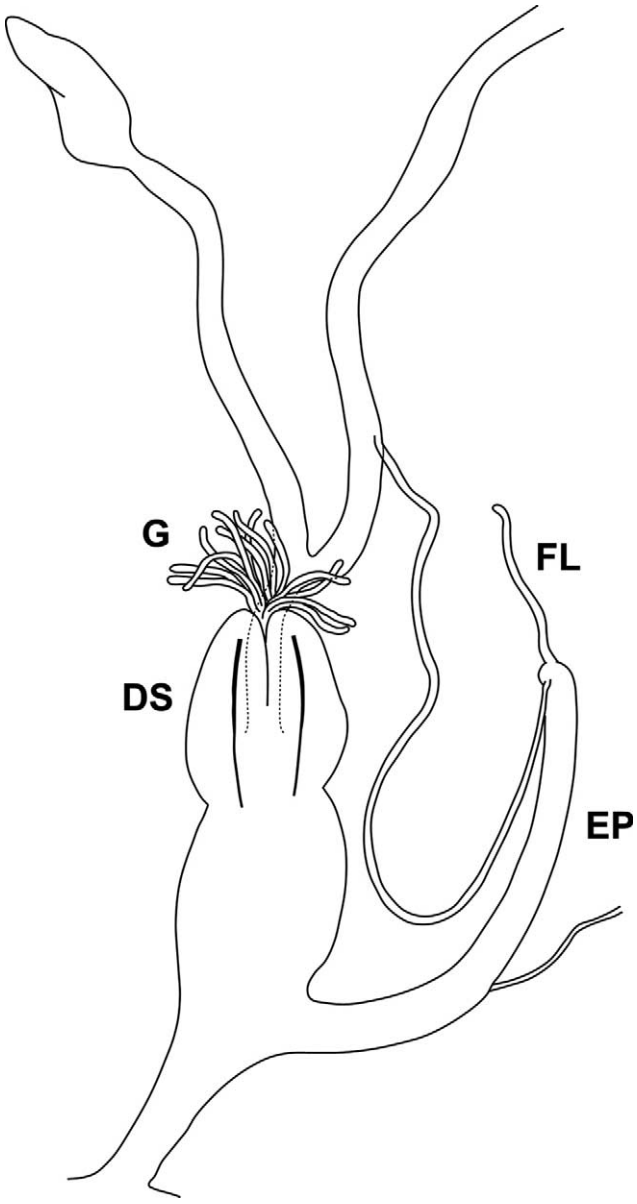

Fig. 11. Reproductive organs of *Helicella itala* from ulová, Rychlebské Hory, M. HORSÁK, orig.

shown in Table 2. The shell and reproductive organs of the specimen collected in the Rychlebské Hory are shown in Figs 10 and 11. We can conclude that "*Cernuella neglecta*" reported by WIKTOR (1964, 2004) from Poland was actually *Helicella itala*, based on anatomical and conchological characters provided by that author. The occurrence of *H. itala* in Poland is connected with the locality in the Rychlebské Hory. Based on our results *Cernuella neglecta* should be excluded from the list of Polish fauna.

CHRTEK et al. (1959) regarded the area of the Rychlebské Hory as transitory between the Jeseníky Mts and the Polish lowlands, where mountain plant species occur together with thermophilous lowland species. ŠTYS (1959) collected Heteroptera typical of the lower mountains of the Sudetic region, including a number of thermophilous, Mediterranean, bo-

Table 2. Comparison of some anatomical and conchological characters of *Helicella itala* and *Cernuella neglecta*

	Length of dart sacs	Number of darts	Length of flagellum	Spire	Body whorl	Lip	Bands	Umbilicus
Helicella itala PFLEGER 1980	equal	2	1/2 epiphallus	flattened	descending	absent	pale	wide
Helicella itala Rychlebské Hory	equal	2	1/2 epiphallus	flattened	descending	absent	pale	wide
"*Cernuella neglecta*" WIKTOR 2004	equal	?	1/2 epiphallus	flattened	descending	absent	pale	wide
Cernuella neglecta PFLEGER 1980	different	1	1/3–1/6 epiphallus	conical	not descending	present	dark	narrow

reo-montane and montane species. DOBŠÍK (1959) also found hemipteran insects of Mediterranean or Pontic origin in one locality, together with strictly montane species. This review clearly documented the specific transitory character of ecological and zoogeographical composition of the flora and fauna of the Rychlebské Hory.

The mollusc communities also show a transitory character. Montane species *Clausilia cruciata* and *Eucobresia nivalis* with thermophilous *Discus perspectivus* occur in the same locality. Thermophilous, open country *Helicella itala* occurs here at the highest altitudes in the Czech Republic (520 m a. s. l.). The site in the Rychlebské Hory is its easternmost occurrence. *Chondrina clienta* occurs here at the northern limit of its Central European range.

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