

# The New Red List of the molluscs of Latvia

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## Abstract

A new list of protected molluscs in Latvia – the New Red List – has been prepared. It includes 39 species from 170 species found in Latvia. The category 0 has no species, there is 1 species in the first category, 6 species in the second category, 25 species in the third category, and 7 species in the fourth category. Evaluation criteria similar to these in the previously published Red Books have been used. Information on 64 species included in the IUCN LC category is also collected. There is no need for special protection measures for these species; however, the dynamics of their populations should be monitored.

**Key words:** Latvia, mollusc species, protection status.

## Introduction

The first Red Data Book of Latvia was published 33 years ago (Aigare et al. 1985), and only one species – freshwater pearl mussel *Margaritifera margaritifera* – was included in it, in the 1st category. The second, expanded edition of the Red Data Book of Latvia (Spuris 1998) was published 20 years ago, and it contained 29 species of molluscs. The definitions of categories in both editions were quite similar, except only the 0 category (category of extinct species). In the preparation of the second edition more attention was paid to the *IUCN Red List of Threatened Animals* (IUCN 1996).

The first modern synopsis of molluscs of Latvia was published in 1942 (Schlesch 1942). It contained all published and research data in 1930-ies. In 1950-ies the information about mollusc species was summarized in the *Identification Keys to Animals in Latvia* (Sloka, Sloka 1957). The list of Latvian molluscs was published later, in 1997 (Rudzīte et al. 1997). The latest data about molluscs in Latvia was published in the *Guide to the Molluscs of Latvia* (Rudzīte et al. 2010). Updated list of molluscs of Latvia has been prepared during last years (Rudzīte et al. 2018). The information about mollusc fauna in the Baltic States was also summarized (Stalažs, Dreijers 2016).

The updated New Red List of the molluscs of Latvia assesses the status of each species and the current legislation of the Republic of Latvia adequacy to the internationally recognized documents.

## Red List categories

The definitions of the following categories are based on the slightly amended definitions of the *Red Book of Latvia* (Spuris 1998).

**0:** extinct species, not encountered in nature for the recent 50 years, yet possibly have survived in separate places in nature, in captivity, or in cultures; they need a special government protection by law (Spuris 1998). Currently, from mollusc species found in Latvia, none corresponds to this category. In the *Red Data Book of Latvia* (Spuris 1998) the species *Helicigona lapicida* (Linnaeus, 1758) and *Truncatellina cylindrica* (A. Férussac, 1807) were included in the 0<sup>th</sup> category because they have not been found in Latvia for 50 years, since 1930-ies up to 1990-ies. Later these species were found several times (Rudzīte et al. 2010).

**1:** endangered species; unless some changes are made, will probably become extinct, their number has diminished to the critical limit; they need a special government care in protection by regulations and by specific or definite measures. There is one species in this category, *Margaritifera margaritifera*, included in the Appendix II of the *Convention of the Conservation of European Wildlife and Natural Habitats*, Bern, 1979 (Convention 1979).

**2:** vulnerable species decreasing in number, the areal of these species diminishes in the course of years either due to natural reasons or human activity, or both; they need control on further changes in their number, and a special government care and protection by regulations and

measures. There are six species in this category.

3: rare species, no threat of extinction as yet, although encountered in such a small number or in so limited areas and specified sites that they may probably disappear; they need a special government care and protection by regulations and measures. There are 25 species in this category.

4: undetermined species, species insufficiently studied; probably endangered, yet due to the lack of information it is impossible to give an exact estimation of their present status; a deeper study is needed. There are seven species in this category.

The New Red List of molluscs of Latvia is presented in Table 1.

**Table 1.** The New Red List of molluscs of Latvia. **Influencing factors:** the main factors that influences the state of the species in Latvia. A, the fragmentation of natural habitats that restrict populations and does not allow the species to spread further; B, decrease and degradation of natural habitat areas as a result of the human activity or ecological succession; C, decrease and degradation of natural habitats due to spreading of an expansive species; D, water pollution due to human activities, E, intentional use in the interests of humans. **IUCN:** categories used are from the IUCN Red List version 3.1. (IUCN 2017). EN, endangered; VU, vulnerable; NT, near threatened; LC, least concern; DD, data deficient; ver. 2.3, Version 2.3 (needs updating). **EC Directive:** The Habitats Directive (Directive 1992). II, species included in the Annex II (Animal and plants species of community interest whose conservation requires the designation of special areas of conservation); IV, species included in the Annex IV (Animal and plant species of community interest in need of strict protection); V, species included in the Annex V (Animal and plant species of community interest whose taking in the wild and exploitation may be subject to management measures). **Protected:** 1, species included in Annex I (List of specially protected species of Regulations of Cabinet of Ministers of Republic of Latvia for list of specially protected species and of species of limited exploitation, Regulation No. 396, Annex I, II on 14 November 2000, amended as Regulation No. 627, Annex I, on 27 July 2004; 2, species included in Annex II (List of species of limited exploitation, the same Regulations). **Microreserves:** +, species included in the List of Species of the Regulations of the Cabinet of Ministers of Republic of Latvia No. 940 adopted on December 18, 2012 (Regulation on Microreserve Establishment and Management Procedure, Their Protection, as well as Identification of Microreserves and Their Bufferzones). <sup>1</sup>We need a reservation about *Arion rufus* that the category concerns only the local red slug populations and does not concern the synanthropical ones that were brought to Latvia by humans. <sup>2</sup>*Parvicardium hauniense* evaluated Vulnerable in HELCOM Red List of Baltic Sea species (HELCOM 2013). <sup>3</sup>*Alderia modesta* was evaluated as Near Threatened in HELCOM Red List of Baltic Sea species (HELCOM 2013), it has recently been found in Latvian territorial waters by V. Jermakovs (personal report about *Alderia modesta* occurrence in Latvian territorial waters)

Species	Influencing factors	IUCN	EC Directive	Protected	Microreserves
<b>Category 1</b>					
<i>Margaritifera margaritifera</i> (Linnaeus, 1758)	A, B, C, D, E	EN	II, V	1	+
<b>Category 2</b>					
<i>Theodoxus fluviatilis</i> (Linnaeus, 1758)	A, B, C, D	LC		1	
<i>Vertigo angustior</i> Jeffreys, 1830	B	NT	II	1	
<i>Vertigo genesii</i> (Gredler, 1856)	B	LC	II	1	+
<i>Vertigo geyeri</i> Lindholm, 1925	B	LC	II	1	+
<i>Vertigo moulinsiana</i> (Dupuy, 1849)	A, B	VU	II		+
<i>Unio crassus</i> Philipsson, 1788	A, B, C, D, E	EN	II, IV	1	+
<b>Category 3</b>					
<i>Platyla polita</i> (W. Hartmann, 1840)	A, B	LC		1	
<i>Myxas glutinosa</i> (O. F. Müller, 1774)	A, D	DD ver 2.3			
<i>Gyraulus crista</i> (Linnaeus, 1758)	A, D	LC			
<i>Cochlicopa nitens</i> (M. von Gallenstein, 1848)	A, B	LR/LC ver 2.3		1	
<i>Spermodea lamellata</i> (Jeffreys, 1830)	A, B	NT		1	
<i>Truncatellina cylindrica</i> (A. Férussac, 1807)	A, B			1	
<i>Vertigo lilljeborgi</i> (Westerlund, 1871)	A, B	NT			
<i>Ena montana</i> (Draparnaud, 1801)	A, B	LC		1	+
<i>Merdigera obscura</i> Held, 1838	A, B	LC		1	
<i>Bulgarica cana</i> (Held, 1836)	A, B	LC		1	
<i>Clausilia bidentata</i> (Ström, 1765)	A, B	LC		1	
<i>Clausilia cruciata</i> (S. Studer, 1820)	A, B	LC		1	+
<i>Clausilia dubia</i> Draparnaud, 1805	A, B	LC		1	
<i>Clausilia pumila</i> C. Pfeiffer, 1828	A, B	LC		1	
<i>Cochlodina orthostoma</i> (Menke, 1828)	A, B	LC		1	

continued

Table 1. continued

Species	Influencing factors	IUCN	EC Directive	Protected	Microreserves
<i>Macrogastra borealis</i> (O. Boettger, 1878)	A, B	LC		1	+
<i>Ruthenica filograna</i> (Rossmässler, 1836)	A, B	LC		1	
<i>Oxychilus alliarius</i> (J.S. Miller, 1822)	A, B	LC			
<i>Arion rufus</i> (Linnaeus, 1758) <sup>1</sup>	A, B, C	LC			
<i>Isognomostoma isognomostomos</i> (Schröter, 1784)	A, B	LC		1	+
<i>Helicigona lapicida</i> (Linnaeus, 1758)	A, B	LC		1	+
<i>Pseudanodonta complanata</i> (Rossmässler, 1835)	A, D	VU			
<i>Musculium lacustre</i> (O. F. Müller, 1774)	A, D	LC			
<i>Sphaerium rivicola</i> (Lamarck, 1818)	A, D	VU			
<i>Parvicardium hauniense</i> (Petersen & Russell, 1971) <sup>2</sup>	A, D	VU			
<b>Category 4</b>					
<i>Alderia modesta</i> (Lovén, 1844) <sup>3</sup>	A				
<i>Valvata cristata</i> O. F. Müller, 1774	A				
<i>Anisus vorticulus</i> (Troschel, 1834)	A	DD			
<i>Vertigo ronnebyensis</i> (Westerlund, 1871)	A, B	LC			
<i>Cecilioides acicula</i> (O.F. Müller, 1774)	A				
<i>Vitrea contracta</i> (Westerlund, 1871)	A				
<i>Sphaerium solidum</i> (Normand, 1844)	A, D	NT			

### The IUCN Red List species

A special attention should be paid to 64 species, both native and not native, occurring in Latvia that needs

internationally admitted care, i.e. the species are included in the IUCN Red List as an LC category species (Table 2). For the moment these species do not require state protection in the form of legislative acts.

**Table 2.** Mollusc species that are included in the IUCN RED List as LC category species. **Distribution and occurrence in Latvia:** vf, very frequent; f, frequent; rf, relatively frequent; nf, not frequent; r, rare; vr, very rare; d, distribution to be specified; ?, status to be specified; il (number indicated), isolated locality (Rudzīte et al. 2018). **Annotations:** indicated belonging to the local fauna of Latvia as native or not native. Eleven of these species have been found in archaeological excavations that prove their belonging to the local fauna. However, the material obtained from the excavation shows only a part of the species of postglacial time (Rudzīte et al. 2012; Berzins et al. 2014; Bērziņš et al. 2016; for some species also unpublished data and material in the Museum of Zoology of University of Latvia)

Species	Distribution and occurrence	Annotations
<i>Viviparus contectus</i> (Millet, 1813)	f	native, in archeological samples
<i>Viviparus viviparus</i> (Linnaeus, 1758)	f	native
<i>Bithynia leachii</i> (Sheppard, 1823)	rf	native, in archeological samples
<i>Bithynia tentaculata</i> (Linnaeus, 1758)	vf	native, in archeological samples
<i>Ecrobia ventrosa</i> (Montagu, 1803)	nf	native, in archeological samples
<i>Potamopyrgus antipodarum</i> (J. E. Gray, 1843)	nf	not native
<i>Borysthenia naticina</i> (Menke, 1845)	nf	not native
<i>Valvata macrostoma</i> Mörch, 1864	nf	native, in archeological samples
<i>Valvata piscinalis</i> (O. F. Müller, 1774)	vf	native, in archeological samples
<i>Acroloxus lacustris</i> (Linnaeus, 1758)	f	native, in archeological samples
<i>Galba truncatula</i> (O. F. Müller, 1774)	f	native
<i>Lymnaea stagnalis</i> (Linnaeus, 1758)	vf	native, in archeological samples
<i>Radix auricularia</i> (Linnaeus, 1758)	f	native
<i>Radix balthica</i> (Linnaeus, 1758)	d	?
<i>Stagnicola corvus</i> (Gmelin, 1791)	d	?
<i>Stagnicola fuscus</i> (C. Pfeiffer, 1821)	d	?
<i>Stagnicola palustris</i> (O. F. Müller, 1774)	d	?

continued

Table 2. continued

Species	Distribution and occurrence	Annotations
<i>Stagnicola turricula</i> (Held, 1836)	d	?
<i>Physa fontinalis</i> (Linnaeus, 1758)	f	native
<i>Anisus leucostoma</i> (Millet, 1813)	r	native
<i>Bathyomphalus contortus</i> (Linnaeus, 1758)	f	native
<i>Gyraulus albus</i> (O. F. Müller, 1774)	rf	native
<i>Gyraulus laevis</i> (Alder, 1838)	r	native
<i>Gyraulus rossmaessleri</i> (Auerswald, 1852)	r	native
<i>Hippeutis complanatus</i> (Linnaeus, 1758)	rf	native
<i>Planorbarius corneus</i> (Linnaeus, 1758)	vf	native, in archeological samples
<i>Planorbis planorbis</i> (Linnaeus, 1758)	vf	native
<i>Pupilla muscorum</i> (Linnaeus, 1758)	nf	native
<i>Columella edentula</i> (Draparnaud, 1805)	vf	native
<i>Balea biplicata</i> (Montagu, 1803)	?	?
<i>Laciniaria plicata</i> (Draparnaud, 1801)	rf	native
<i>Macrogastera plicatula</i> (Draparnaud, 1801)	rf	native
<i>Macrogastera ventricosa</i> (Draparnaud, 1801)	f	native
<i>Vitrea crystallina</i> (O. F. Müller, 1774)	rf	native
<i>Oxychilus cellarius</i> (O. F. Müller, 1774)	il 3	not native
<i>Oxychilus draparnaudi</i> (H. Beck, 1837)	il 2	not native
<i>Limacus flavus</i> (Linnaeus, 1758)	il 1	not native
<i>Malacolimax tenellus</i> (O. F. Müller, 1774)	rf	native
<i>Deroceras sturanyi</i> (Simroth, 1894)	nf	native
<i>Arion circumscriptus</i> Johnston, 1828	f	native
<i>Arion distinctus</i> J. Mabilie, 1868	?	?
<i>Arion fasciatus</i> (Nilsson, 1823)	f	native
<i>Arion fuscus</i> (Draparnaud, 1805)	f	native
<i>Arion hortensis</i> Ferussac, 1819	?	?
<i>Fruticicola fruticum</i> (O. F. Müller, 1774)	vf	native
<i>Euomphalia strigella</i> (Draparnaud, 1801)	nf	native
<i>Monachoides incarnatus</i> (O. F. Müller, 1774)	il 3	native
<i>Perforatella bidentata</i> (Gmelin, 1791)	f	native
<i>Pseudotrichia rubiginosa</i> (Rossmässler, 1838)	rf	native
<i>Arianta arbustorum</i> (Linnaeus, 1758)	vf	native and expansive
<i>Cepaea hortensis</i> (O. F. Müller, 1774)	rf	native
<i>Cepaea nemoralis</i> (Linnaeus, 1758)	r	not native, but stable populations
<i>Caucasotachea vindobonensis</i> (Ferussac, 1821)	il 1	not native
<i>Helix pomatia</i> Linnaeus, 1758	rf	not native, but stable populations
<i>Anodonta anatina</i> (Linnaeus, 1758)	f	native
<i>Anodonta cygnea</i> (Linnaeus, 1758)	nf	native
<i>Unio pictorum</i> (Linnaeus, 1758)	rf	native, in archeological samples
<i>Unio tumidus</i> Philipsson, 1788	f	native, in archeological samples
<i>Pisidium casertanum</i> (Poli, 1791)	r	native
<i>Pisidium henslowanum</i> (Sheppard, 1823)	rf	native
<i>Pisidium obtusale</i> (Lamarck, 1818)	d	native
<i>Pisidium supinum</i> A. Schmidt, 1851	r	native
<i>Sphaerium ovale</i> (A. Férussac, 1807)	d	native
<i>Dreissena polymorpha</i> (Pallas, 1771)	vf	not native

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