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CLASSIFICATION OF MOLLUSCS OF SLOVAKIA FROM THE POINT OF VIEW OF THEIR EXPOSURE TO DANGER

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ABSTRACT: The paper deals with the assessement of the state of the malacofauna of Slovakia, from the point of view of its exposure to danger. On the territory of Slovakia 243 autochthonous mollusc species are known to occur. The exposure to danger being considered, the author includes the mollusc species into three groups: critically threatened, threatened, rare.

KEY WORDS: Slovakia, malacofauna, Gastropoda, checklist, distribution, conservation

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ABSTRACT

The paper deals with the assessement of the state of the malacofauna of Slovakia, from the point of view of its exposure to danger. On the territory of Slovakia 243 autochthonous mollusc species are known to occur. The exposure to danger being considered, the author includes the mollusc species into three groups: critically threatened, threatened, rare.

The exposure to danger, rarity and significance of a certain plant or animal species can be judged only by thoroughly studying its ecology, distribution, demands, and factors that are important for its existence in a given area. It is due to the sustained growth of pollution sources and of other negative factors in natural environment that we must confront the serious problem that the word "protect" will have to be consequently superseded by the word "save". It is not easy to learn the ecological way of thinking. We can witness many cases of the excessive exploitation of some natural resources that would suffice for several years under conditions of careful management. Man has somehow forgotten that nature, just as he himself, needs a definite time for rehabilitation. Moreover, man has assumed the right to decide on the life or existence of living organisms. As a result of the unreasonable utilization of nature not only several species of organisms are threatened with extinction but also minor and, consequently, major crises may arise.

The task of both state nature protection authorities and voluntary societies is to point out that such a way of utilization of natural resources is wasteful as well as futile, and to work out a satisfactory compromise between the demands of nature protection and those of the exploitation of natural resources. One of the other tasks is to survey and appraise the current state of the individual species of organisms and table proposals for their effective protection and use.

The present paper deals with the assessment of the current state of molluscs on the territory of Slovakia. It is due to several malacologists (V.LOŽEK, VL.HÜDEC, J.BRABENEC, S.MÁCHA, L.LISICKÝ, V.KROUPOVÁ, J.ŠTEFFEK, V.PFLEGER) that the present state of the knowledge of the molluscs and their distribution is on such a level that allows to assess in an objective manner the exposure to danger, the rarity and significance of each species.

On the territory of Slovakia 243 species of recent and autochthonous molluscs are recorded. The figure does not cover the species that came to the territory by the import of exotic plants, through gardeners or aquarists, and live only in hothouses or in thermal springs, for example: *Melanoides tuberculatus* O.F.MÜLLER, 1774, *Helisoma trivolvis*, *Gulella io* VERDCOURT, 1974, *Zonitoides arboreus* (SAY, 1816), *Pseudosuccinea columella* (SAY), and others.

On the basis of several criteria as, for instance, size of area, number of localities, origin, endemism, the typified species of Slovakia may be classified into 4 groups (ŠTEFFEK 1987a).

I. Endemic species - ocurring only in a small part of the territory of Slovakia [*Cochlodina fimbriata remota* LOŽEK, 1952, *Alopia bielzi clathrata* (ROSSMÄSSLER, 1857), *Chilostoma (Faustina) cingulellum* (ROSSMÄSSLER, 1837), *Chondrina tatrica* LOZEK, 1948, *Belgrandiella slovenica* LOŽEK et BRTEK, 1964, *Spelaeodiscus tatricus* (HAZAY, 1883), *Deroceras tatrense* (MACHA)], or part of the area extends beyond the state border [*Sadleriana pannonica* (FRAUENFELD, 1865)].

II. Species of advanced occurrence - having their natural distribution boundary on the territory of Slovakia. They occur either at one [*Abida secale* (DRAPARNAUD, 1801), *Hygromia transsylvanica* (WESTERLUND, 1876)], or at several localities [*Perforatella (Perforatella) dibothryon* (M.v.KIMAKOWICZ, 1884), *Carpathica calophana* (WESTERLUND, 1881), *Trichia bielzi* (A.SCHMIDT, 1860) - western boundary; *Zebrina detrita* (O.F.MÜLLER, 1774), *Chondrula tridens albolimata* (L.PFEIFFER), *Fagotia acicularis* (FERUSSAC, 1823), *F. esperi* (FERUSSAC, 1823), *Theodoxus transversalis* (C.PFEIFFER, 1828), *Trichia striolata* (C.PFEIFFER, 1828) - northern boundary].

III. Early Recent species - settings with a patchy area whence they do not propagate farther [*Pagodulina pagodula* (Des MOULINS, 1830), *Catinella arenaria* (BOUCHARD-CHANTEREAUX, 1837), *Trichia filicina* (L.PFEIFFER, 1841), *Candidula unifasciata* (POIRET, 1801)].

IV. Species whose stocks have declined rapidly, or the numbers of their known localities have dropped in recent years, either by chemicalization or by destroying their habitats and localities for construction and economic utilization purposes (recultivation, land melioration, clear cuttings). Hither we can include mainly aquatic and swamp species e.g. *Gyraulus riparius* (WESTERLUND, 1865), *Anisus septemgyratus* (ROSSMÄSSLER, 1835), *Vertigo moulinsiana* (DUPUY, 1849), *V. geyeri* LINDHOLM, 1925, *Cochlicopa nitens* (GALLENSTEIN, 1848), and other ones.

From the aspect of the present state of exposure to danger of some species of molluscs in Slovakia, they may be classified into the following categories (ŠTEFFEK 1987b).

I. Critically threatened species

Species included into this category occur at present in Slovakia at one or a few localities. If ineffectively protected there is danger of their extinction. They include:

- *Theodoxus transversalis* - the Danube;
- *Valvata naticina* MENKE, 1845 - here known only from the Danube;
- *Fagotia acicularis* - the Danube;
- *F. esperi* - probably extinct, the Danube;

- *Gyraulus acronicus* (FÉRUSSAC, 1807) - periglacial relict, Záhorie area;
- *G. riparius* -the Podunajská nižina lowland;
- *Vertigo moulinsiana* -relict of calcareous swamps;
- *V. geyeri* -relict of calcareous swamps;
- *Pagodulina pagodula* -2 isolated localities;
- *Abida secale* -sole locality in the Little Carpathians;
- *Spelaeodiscus tatricus* -endemite of the Belianské Tatry Mountains;
- *Chondrula tridens albolimata* -2 localities;
- *Catinella arenaria* -sole locality at Tisovce;
- *Cochlodina fimbriata remota* -endemite of the Vtáčnik Mountain;
- *Trichia filicina* -isolated locality at the Považský Inovec Mountain;
- *Hygromia transsylvanica* -sole locality in the Cerová Vrchovina uplands.

II. Threatened species

Species whose frequency obviously declines, whose localities vanish or only several localities are known (± 10):

- *Theodoxus danubialis* (C.PFEIFFER, 1828) - the Danube and its tributaries;
- *Valvata pulchella* STUDER, 1820 - sporadically in the Danube and Tisza areas;
- *Sadleriana pannonica* - endemite of the Slovak Karst;
- *Planorbis carinatus* O.F.MÜLLER, 1774 - sporadically in the Danube and Tisza areas;
- *Truncatellina costulata* (NILSSON, 1822) - relict in the Little Carpathians;
- *Vertigo arctica* (WALLENBERG, 1858) - relict in the High Tatra Mountains;
- *Argna bielzi* (ROSSMÄSSLER, 1859) - receding Carpathian species of forests;
- *Tandonia rustica* (MILLET, 1843) - the northern distribution boundary lies in southern Slovakia (rare);
- *Deroceras fatrense* - endemite of the Fatra Mountains;
- *Alopia bielzi clathrata* - endemite of the Slovak Karst;
- *Clausilia dubia carpathica* BRANCSIK, 1888 - endemite of the Western Carpathians;
- *C. dubia ingenua* HUDEC et BRABENEC - endemite of the Western Carpathians;
- *Trichia striolata* - periglacial relict, rare in the neighbourhood of the Danube and in the Little Carpathians.

III. Rare species

Species either having their distribution limit on our territory or being limited to a small area within Slovakia:

- *Acicula parcelineata* (CLESSIN, 1911) - Carpathian species of autochthonous forests;
- *Anisus septemgyratus* - sporadically on the East Slovakian Plain and in the Danubian Lowland;
- *A. vorticulus* (TROSCHEL, 1834) - on the Danubian Plain (sporadically);
- *Gyraulus laevis* (ALDER, 1838) - sporadic occurrence;
- *Columella columella* (G.v.MARTENS, 1830) - glacial relict;
- *Carpathica calophana* - western boundary of distribution - an East-Carpathian species;
- *Candidula soosiana* (J.WAGNER, 1933) - West Carpathian species;

- *Helicopsis striata* (O.F.MÜLLER, 1774) - relict occurrence in the Danubian Plain;
- *Helix lutescens* ROSSMÄSSLER, 1837 - western boundary of distribution;
- *Trichia bąkowskii* (POLIŃSKI, 1924) - western boundary of distribution;
- *T. bielzi* - western boundary of distribution.

IV. Significant species

This category includes species which, though not immediately threatened, belong either to endemites with a larger area or are important in terms of zoogeography:

- *Viviparus acerosus* (BOURGUIGNAT, 1862) - Danubian endemite;
- *Belgrandiella slovenica* agg. LOŽEK et BRTEK, 1964 - endemites of karstic areas *(B. bojnicensis, B. slovenica, B. alticola, B. kalašii);*
- *Chondrina tatrica* - West-Carpathian endemite;
- *Pupilla alpicola* (CHARPENTIER, 1837) - West Carpathian species;
- *P. sterri* (VOITH, 1838) - periglacial relict;
- *P. triplicata* (STUDER, 1820) - periglacial relict;
- *Zebrina detrita* - northern boundary of distribution;
- *Helicigona cingulella* (ROSSMÄSSLER, 1837) - West Carpathian endemite;
- *H. rossmaessleri* (L.PFEIFFER, 1842) - West Carpathian endemite;
- *Perforatella dibothryon* - western boundary of distribution;
- *Pisidium moitessierianum* PALADILHE, 1866 - rare species;
- *P. tenuilineatum* STELFOX, 1918 - rare species;
- *P. amnicum* ((O.F.MÜLLER, 1774) - rare species.

Two species are separately registered - *Vallonia adela* WESTERLUND, 1881, and *Cecilioides petitiana* (BENOIT, 1862) that were identified only once on the territory of Slovakia. It is for approximately 30 years that their occurrence has not been confirmed.

The gist of preserving a certain mollusc species lies in maintaining the autochthonous state of its biotope. What has to be done away forthwith in the first instance are all negative effects (chemicalization, air pollution, changes in climatic conditions, culture variation, land melioration, etc.). Which is the present state of molluscs suggested to be included into the International Red List of Animals?

Spelaeodiscus tatricus - is an endemite of the Belanské Tatry Mountains, spreading on a small territory of the Tatra Basin in the area of the Suchá Dolina valley. Its population is not very numerous, nor is it directly threatened at present by conspicuous detrimental influences. It is of advantage that its entire distribution area coincides, in terms of territory, with the Tatra National Park, where the origination of negative phenomena is ruled out and in the close vicinity no sources of pollution are situated, either. The territory is an attractive area for tourism.

Cochlodina fimbriata remota - is an endemite of the northern portion of the Vtačnik Mountain. Its distribution area encompasses a small territory in the neighbourhood of the Bystrý Potok brook. This species, just as the preceding one, does not expand farther from its contemporary area. It is situated in a flood valley in the culminating sector of two rivulets in a sylvan environment. As to its territory, the arrea of occurrence forms part of the Ponitrie Protected Landscape Area. The locality is affected by the fallout of exhalations from factories placed rather closely. The effect of

exhalations has hitherto not been monitored. The territory has been proposed to be made a protected finding place, which would prevent its liquidation by clear felling. Such an exploitation mode would similarly change both the climatic and habitat conditions of the said species.

Alopia bielzi clathrata – is an endemite of the Slovak Karst. The distribution area of this species spreads on the slopes of the Zádielska Dolina valley and on the adjacent rocky biotopes. The entire distribution area is a territorial part of the Slovenský Kras Protected Landscape Area and, even more, it is stringently protected as a state nature reserve. The only potential threat to the locality and thus also to this and other species is the presence of a cement factory situated in the neighbourhood of the valley mouth. The effect of exhalations from the cement factory upon the species has so far not been traced.

Owing to their numerous incidence and numerous populations, additional mentioned endemic species of molluscs have not been proposed to be included into the International Red Book. These are *Chondrina tatrica, Helicigona cingulella, H. rossmaessleri, Sadleriana pannonica.* The distribution areas of the species *Deroceras tatrense* and *Belgrandiella slovenica* agg. are so far unknown. In spite of these facts it is necessary that all Slovak endemites as well as additional species of molluscs threatened in their existence under the conditions of Slovakia be entered into the red list of animals of Slovakia.

REFERENCES

ŠTEFFEK J. 1986. Proposal for placing three Slovak molluscs into the International Red Book. Ninth International Malacological Congress, Edinburgh, August 31 – September 6, 1986, Abstracts: 85.

ŠTEFFEK J. 1897a. Some Slovak molluscs into the International Red Book, Pamiatky – príroda (Bratislava), XVIII, 2: 68–69.

ŠTEFFEK J. 1987b. Threatened, rare and significant mollusc species of Slovakia. Ochrana Prírody (Bratislava), 8 (in print).

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STRESZCZENIE

Klasyfikacja mięczaków Słowacji pod względem ich zagrożenia

Tematem pracy jest ocena stanu malakofauny Słowacji, z punktu widzenia jej zagrożenia działalnością człowieka. Na terytorium Słowacji występuje 243 gatunki rodzimych mięczaków. Biorąc pod uwagę stan ich zagrożenia, autor zalicza je do trzech grup: krytycznie zagrożone, zagrożone i rzadkie.