

Reptiles in the Red Data Book of Ukraine: a new species list, status categories, and problems arising from conservation legislation

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Abstract. A list of reptiles, proposed by Ukrainian herpetologists for inclusion in the third edition of the Red Data Book of Ukraine (RDBU), is given. The third edition is planned to be enriched with five taxa: *Darevskia armeniaca*, *D. lindholmi*, *Lacerta viridis*, *Elaphe dione* and *Vipera berus nikolskii*; recently discovered *Darevskia dahli* should be also included. All eight species, which were present in the second edition of RDBU (*Mediodactylus kotschyi*, *Pseudopus apodus*, *Hierophis caspius*, *Coronella austriaca*, *Elaphe sauromates*, *Zamenis longissimus*, *Z. situla*, *Vipera renardi*), will remain in the third edition. Status categories of species and problems of RDBU compiling, which arise from conservation legislation, are discussed.

Introduction

The Red Data Book of Ukraine (RDBU) had two editions (Red, 1980; Shcherbak, 1994). According to the Ukrainian legislation, every 10 years a new revised edition should be published, the Ministry for Environmental Protection of Ukraine being responsible for its organization. In 2004 the project No 7/1040/25 of the Ministry “The study of species diversity with the aim of keeping the Red Data Book of Ukraine” was implemented by scientists mainly from the National Academy of Sciences of Ukraine. Under this project the series of species outlines have been prepared as a basis for corresponding outlines in the third edition of RDBU (RDBU-3). The compilation of the database on each species has been started as well. Most of the species outlines have been published (Kotenko and Kukushkin, 2005a, b, c; Kotenko and Sytnik, 2005; Kotenko et al., 2005; Kukushkin and Kotenko, 2005; Kukushkin and Sviridenko, 2005; Kukushkin and Tsvlykh, 2005; Kukushkin and Sharygin, 2005; Zinenko and Kotenko, 2005), giving possibility to Ukrainian herpetologists to discuss the data presented, and to supplement them before the preparation of final versions of species outlines for the third edition of the RDBU. The outlines on *Darevskia armeniaca* (authors I. Darevsky and I. Dotsenko) and *Zamenis longissimus* (author S. Tarashchuk) have not been published up to now, and on *Elaphe dione* only new data on the species distribution in Ukraine have been presented (Kotenko and Kondratenko, 2005). RDBU is an official document, and the protection of species included in this book is regulated by a special decree of 1992 of the Supreme

Soviet of Ukraine, and the Law “On the Red Data Book of Ukraine” (Law, 2002). In this communication, a species list of reptiles proposed for RDBU-3, species status categories and problems arising from conservation legislation are considered and discussed. The main aim of this paper is to inform foreign herpetologists about the situation with a new national red list of reptiles and about the state of threatened reptile species in Ukraine.

Materials and Methods

For the outlines on amphibians and reptiles a uniform scheme (structure) has been used, taking into account a scheme accepted in RDBU-2, with some changes and additions made by E. Pisanets and T. Kotenko. Each outline of a species included such points (some explanations are given in brackets):

- Ukrainian and Latin names,
- systematic position,
- taxonomic characteristics,
- description (short description of external appearance),
- protective status (category),
- distribution,
- habitats,
- abundance/numbers and the trends of their change (available data on population density and total numbers, with mentioning factors influencing them),
- arguments for including to RDBU (based on the Law and other grounds),
- peculiarities of biology (different aspects of biology and ecology, practical significance etc.),
- prospects and examples of conservation of artificially created populations in natural conditions,
- undertaken and necessary measures of conservation,
- sources of information (published and unpublished),
- authors.

Specialists who have been studying the species for a long time prepared the outlines. Those were based on personal authors’ data and summarised information from literature and museum collections on relevant species within the territory of Ukraine. The species distribution in Ukraine is not discussed in detail, as in RDBU-3 all outlines will be supplemented by schematic maps of the species localities.

Results and Discussion

Ukraine is inhabited by 22–23 species of reptiles (depending on the taxonomic status of the Nikolsky's viper), six of which were included in the first edition of RDBU (Red, 1980), eight — in the second edition (Shcherbak, 1994). According to the Ukrainian legislation (Law 2002, paragraph 14), such species should be included to the third edition of RDBU:

- relict and endemic species;
- species of which Ukrainian populations are at the range border;
- species which have particular scientific value;
- species, declining under the impact of human economic activities.

The protective categories envisaged by the Law (2002) for the species, included to RDBU-3, are (the corresponding IUCN categories are given in brackets, if they differ from the RDBU-3 categories): extinct, extinct in the nature (= extinct in the wild), in danger of extinction (= critically endangered and endangered), vulnerable, rare (no IUCN equivalent), not evaluated, imperfectly studied (= data deficient). The category “rare” refers to species with small populations, which now are not vulnerable or in danger of extinction, but are threatened.

Taking into account mentioned legislation, the Ukrainian herpetologists proposed to include 12 species and one subspecies in the third edition of RDBU (Table 1), one more species (recently discovered *Darevskia dahli*) should be included as well. In such case, 59 or 56% of 22–23 reptile species of Ukraine fauna will be included in the RDBU.

Introduced species are usually not included in the red lists (and to RDBU as well), but an exception was made for *D. armeniaca*. This species was introduced to Ukraine in 1963 (Darevsky and Shcherbak, 1968), it inhabits only a small isolated rocky area near Zhytomyr (North Ukraine) and cannot harm the aboriginal Ukrainian herpetofauna. This population is unique and has an outstanding scientific significance, what meets one of the criteria of including species to RDBU, envisaged by the Law (2002). In the outline on *D. armeniaca* prepared for RDBU-3 (Darevsky and Dotsenko, unpubl.), the species was attributed to the categories of “not evaluated” or “data deficient”. Actually, this species with only one local, but stable population well meets the category of “rare species”, regardless of the level of its study. After the termination of the project, *D. dahli* was revealed in the population of *D. armeniaca* (Dotsenko and Darevsky, 2005). It should

be also included to RDBU under the category of “rare species”, although formally it can be now attributed to the category of “data deficient”.

Resulting from the current Ukrainian legislation (Law, 2002), three main groups of problems exist regarding RDBU reptiles (and some other groups of animals). They can be indicated as problems on:

- criteria of the including of species to RDBU (“criteria problem”);
- level of animal organization (species, subspecies, population), which can be protected by RDBU (“level problem”);
- choosing the proper system of protective categories (“categories problem”).

As it follows from the Law (2002), the priority is given to endemic species. In general, it is the correct approach – endemic taxa should be protected. According to this, the only endemic species of reptiles in Ukraine — *D. lindholmi* — has been proposed to be included to RDBU-3. However, this species is in a good condition: it is abundant, inhabits rocky landscapes of the Crimean Mountains, and is not intensively collected. Therefore, neither the species itself, nor its habitats are in any danger. Being proposed for RDBU, this species caused another problem — the identification of its protective status (see below). In my opinion, the main criterion of including a species to the red list should be the real state of its populations.

Subspecies are not the subjects of the Law-2002, so they are not conservation units of RDBU. If a species is represented in Ukraine by one subspecies and it is threatened, it is included to RDBU (as, for example, *Mediodactylus kotschy danilewskii*). But if a species in Ukraine has two or more subspecies and at least one of them is widely distributed and successful, the needs of conservation of a threatened subspecies confront with the letter of the law: a species as a whole cannot be included to RDBU, because it is not threatened, and a threatened subspecies cannot be included because this contradicts the legislation. Such situation is topical regarding the adder (*Vipera berus*) in the case, if the Nikolsky's viper (*V. nikolskii*) is considered as a subspecies of the adder. The Crimean mountain populations of *Emys orbicularis*, which were formerly designated as *E. o. hellenica* (Fritz, 1992, 2001), but now are considered as specific aboriginal populations within *E. o. orbicularis*, are threatened or endangered and need strict protection (Kotenko et al., 2005). Another situation: a species is in RDBU, but its different populations have different state and need different protective measures. Such

Table 1. Reptiles of the fauna of Ukraine in the national Red Data Book.

No	Taxon	Red Data Book of Ukraine, category of protective status ¹		
		I edition (1980)	II edition (1994)	III edition (proposal of 2004) ²
1	<i>Emys orbicularis</i> (Linnaeus, 1758)	–	–	–
2	<i>Mediodactylus kotschy</i> (Steindachner, 1870)	Rare	III (Rare)	Vulnerable (II)
3	<i>Anguis fragilis</i> Linnaeus, 1758	–	–	–
4	<i>Pseudopus apodus</i> (Pallas, 1775)	Rare and In danger of extinction	I (In danger of extinction)	Vulnerable (II)
5	<i>Darevskia armeniaca</i> (Méhely, 1909)	–	–	Not evaluated (IV) or Data Deficient (V)
6	<i>Darevskia dahli</i> (Darevsky, 1957)	–	–	– ³
7	<i>Darevskia lindholmi</i> (Lantz et Cyrén, 1936)	–	–	Restored (VI) ⁴
8	<i>Eremias arguta</i> (Pallas, 1773)	–	–	–
9	<i>Lacerta agilis</i> Linnaeus, 1758	–	–	–
10	<i>Lacerta viridis</i> (Laurenti, 1768)	–	–	Vulnerable (II)
11	<i>Podarcis taurica</i> (Pallas, 1814)	–	–	–
12	<i>Zootoca vivipara</i> (Jacquin, 1787)	–	–	–
13	<i>Coluber (=Hierophis) caspius</i> (Gmelin, 1789)	–	II (Vulnerable)	Vulnerable (II)
14	<i>Coronella austriaca</i> Laurenti, 1768	–	II (Vulnerable)	Vulnerable (II)
15	<i>Elaphe dione</i> (Pallas, 1773)	–	–	In danger of extinction (I)
16	<i>Elaphe sauromates</i> (Pallas, 1814)	Rare	II (Vulnerable)	Vulnerable (II)
17	<i>Zamenis longissimus</i> (Laurenti, 1768)	Rare	III (Rare)	In danger of extinction (I)
18	<i>Zamenis situla</i> (Linnaeus, 1758)	Rare	I (In danger of extinction)	In danger of extinction (I)
19	<i>Natrix natrix</i> (Linnaeus, 1758)	–	–	–
20	<i>Natrix tessellata</i> (Laurenti, 1768)	–	–	–
21	<i>Vipera berus</i> (Linnaeus, 1758)	–	–	–
22	<i>Vipera berus nikolskii</i> Vedmederja, Grubant et Rudaeva, 1986	–	–	Not evaluated (IV) or Data Deficient (V)
23	<i>Vipera renardi</i> (Christoph, 1861)	In danger of extinction	II (Vulnerable)	II (Vulnerable)

¹ Categories of protective status are given according to the species outlines in RDBU-1 (Red, 1980), RDBU-2 (Shcherbak, 1994) or according to categories presented in the Law (2002); in brackets the corresponding names or numbers are given.

² List of taxa is given according to the report on the project No 7/1040/25 (2004) of the Ministry for Environmental Protection of Ukraine, categories of the protective status are given in accordance to opinions of authors of the species outlines.

³ *Darevskia dahli* for Ukraine fauna was discovered after the project termination.

⁴ Category “restored species” is not envisaged for RDBU-3, but was present in RDBU-2 as category VI.

populations should be attributed to different protective categories. For example, *Vipera renardi* is relatively abundant and widely distributed (category II), while the population of Orlov Island (the Black Sea) is unique and very small, and the island is continually diminishing in size (so the category I is appropriate for this population). The special concern and protection are also needed for the Crimean mountain populations or subspecies of *V. renardi* and, probably, *Lacerta agilis*; but current law, as it was said before, considers only species.

The “level problem” has another aspect as well. The taxonomic revisions change the status of forms in both directions. On the one hand, the black adder, which was treated for some time as a separate species *V. prester*, later *V. nikolskii* (Grubant et al., 1973; Vedmederja, Grubant and Rudaeva, 1986), and was reasonably proposed for RDBU-3 (Kotenko, 1999), is now considered as a subspecies *V. berus nikolskii* (Joger et al., 1997; Milto and Zinenko, 2005). This is the only case when a threatened subspecies of a widespread species has been proposed to be included in the RDBU (anyway, it is against the current legislation). On the other hand, a former subspecies of the rocky lizard — *Lacerta saxicola lindholmi* — is now regarded as a full species *Darevskia lindholmi* (Ryabinin et al., 1996; Arribas, 1999). I believe that the official, supported by the legislation, protection of an animal should not depend on changes in its taxonomic status. So both species and subspecies levels should be valid for RDBU, and this should be reflected in the law.

One of the “categories problems” has been mentioned above: in RDBU-3 (and in the Law-2002) there is no proper category for *D. lindholmi*. Authors of a relevant outline (Kukushkin and Sviridenko, 2005) used the category of “restored species”, though nobody ever restored this species. Moreover, such category was present in RDBU-2, but is not envisaged for RDBU-3. A more general problem is the discrepancy of the national system of categories (see Law, 2002) with the IUCN system (see IUCN, 1994). Authors of the Law-2002 tried to follow categories, used in RDBU-2, and made only two changes: included an additional category “species extinct in nature” and excluded “restored species”. In the Ukrainian system the IUCN category of “Lower risk” is absent, with its subcategories “near threatened”, “conservation dependant” and “least concern”. And it is just the LR/nt category, which describes the most adequately the state of *Lacerta viridis* in Ukraine (Kotenko, 1999). Because of the absence of such category, this species has been attributed to the “vulnerable” category (Kotenko, 2005).

In comparison to RDBU-2, in the draft of RDBU-3 the protective category has been changed for three species (Table 1). This results from the better knowledge of some species population state, on the one hand, and from continuing negative impact of human activities, on the other hand. Detailed investigations on *M. kotschy danilewskii* and *Pseudopus apodus* have shown that they are wider distributed and more abundant than it was supposed before. Significant decline of *Zamenis longissimus* populations bear witness to the necessity of attributing this species to the category I.

Attention should be drawn to the fact that *Elaphe dione*, one of the rarest snakes of Ukraine fauna, was missing in RDBU-2, although since 1983 this species was repeatedly proposed to be included in the RDBU (Kotenko, 1983, 1987, etc.). Biology and ecology of this species in Ukraine is almost not studied, and even the data on its distribution are not numerous (Kotenko and Kondratenko, 2005). At the present time the worst state of reptile species in Ukraine is typical of three colubrid species (*E. dione*, *Z. longissimus* and *Z. situla*), which have been attributed to the I category (table 1). However, there are no species of reptiles in real danger of extinction in Ukraine, and only some species of birds and mammals can be attributed to this category. For reptiles the I category is used to indicate the most rarely occurring species with the lowest population numbers (in comparison to the other species of reptiles).

Summarising, we can say that the Ukrainian legislation should be further elaborated (adjusted) concerning the criteria of species including to RDBU, the possibility to include subspecies (and even separate populations) and the system of protective categories.

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