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CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS

Standing Committee

35th meeting
Strasbourg, 1-4 December 2015

**GROUP OF EXPERTS ON THE
CONSERVATION OF AMPHIBIANS AND REPTILES**

1-2 July 2015
Bern, Switzerland

- NATIONAL REPORTS -

Compilation prepared by the Directorate of Democratic Governance

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ARMENIA / ARMENIE

NATIONAL REPORT OF REPUBLIC OF ARMENIA ON NATIONAL ACTIVITIES AND INITIATIVES ON THE CONSERVATION OF AMPHIBIANS AND REPTILES

GENERAL INFORMATION ON THE COUNTRY AND ITS BIOLOGICAL DIVERSITY

Armenia is a small landlocked mountainous country located in the Southern Caucasus. Forty four percent of the territory of Armenia is a high mountainous area not suitable for inhabitation. The degree of land use is strongly unproportional. The zones under intensive development make 18.2% of the territory of Armenia with concentration of 87.7% of total population. On these areas the population density exceeds several times the ecological threshold index (200 person/km²) reaching here up to 480-558 person/km². The poorly developed zones make 38.0% of the territory, where only 12.3% of total population resides with a very low density of 11-20 person/km². The zones under intensive development are provided with engineering-transportation infrastructures. In this zone there are the most available public services, more human resources and financial opportunities. At the same time, the poorly developed areas have rich natural resources with preserved unique natural ecosystems, beautiful landscapes, clean water and air, and biological resources.

Armenia is a country of the landscape and climatic contradictions; due to the complex relief and altitudinal and zonal alternation even on the small territory of the country it is possible to distinguish six climatic types and 10 landscape zones from semi desert areas to snow covered highlands. The location of the country in the intersection of three biogeographical provinces, diversity of climatic conditions and active geological processes have resulted in formation of diverse ecosystems and rich biodiversity with high level of endemism. In the result, on the small territory of the country (about 30 thousand km²) there are about 3800 species of vascular plants, 428 species of soil and water algae, 399 species of mosses, 4207 species of fungi, 464 species of lichens, 549 species of vertebrates and about 17200 species of invertebrate, many of which are considered endemics.

All main natural ecosystems of the Caucasus are presented in the country except moist subtropical ecosystems. By the density of high vascular plants Armenia is ranked among the first-place countries in the world with about 107 species per 1000 km².

The territory of Armenia is notable for intensive speciation processes and it is not accidental that the researchers of flora and fauna of the country often identify new species for the science. Only over the last 10 years more than 50 new species for the science and Armenia have been described, which needed protection.

Presented report provides information about Amphibians and Reptiles included in the National Reports of Republic of Armenia of the UN Convention of Biodiversity and the work done in the frame of implementation of "Emerald Network" in Republic of Armenia.

At present the process to clarify the species composition of vertebrate animals in Armenia can be considered finalized, the same cannot be said about invertebrate animals. Presumably, 30% of invertebrates has been studied so far. According to the recent data in the fauna of Armenia the vertebrates are represented by 549 species, including 93 mammals (instead of previously mentioned 83), 357 birds (instead of previously mentioned 353), 53 reptiles, 7 amphibians and 39 fish species. In Armenia the smallest terrestrial mammal Etruscan shrew (*Suncus etruscus*) has been identified. The insects (Insecta) make 90% of invertebrates. The fauna of Armenia is notable for high endemism (about 500 species making about 3% of the fauna).

Amphibians

A total of seven amphibian species are found in Armenia- *Triturus vittatus*, *Pelobates syriacus*, *Bufo viridis*, *Hyla savignyi*, *Hyla arborea schelkovnikovi*, *Rana ridibunda*, *Rana macrocnemis*.

Reptiles

Of the 53 reptile species found in Armenia, 6 species are endemic.

The changes of the status of biodiversity during 2009-2013 and the main trends by landscape zones are briefly presented below:

a. Semideserts

Over the last five years with intensified processes of soil erosion and desertification the expansion of semidesert zone up by profile by about 50 m has been observed and several edificators have been registered 200-300 m above the previous altitudinal limits of their distribution. According to the data clarified during the recent years in semidesert ecosystems of Armenia 101 species of vertebrate animals (4 amphibians, 30 reptiles, 23 birds, 44 mammals) and 1687 species of invertebrates (including 59 molluscs, 97 arachnids and 1531 insects) have been registered. Some reptiles are typical for the limited desert areas.

Many out of 51 species of reptiles of Armenia occur in the Ararat Valley including Armavir Region. Among reptiles the most endangered are the species *Testudo greaca*, *Eremias pleskei*, *Phrynocephalus horvathi*, sharply reducing species *Eremias shtrauchi*, *Trachylepis septemtaeniata*, *Eryx jaculus* and others.

In the terrestrial semidesert ecosystems of Armenia 101 species of vertebrate animals (4 amphibians, 30 reptiles, 23 birds, 44 mammals) and 1687 species of invertebrates (including 59 molluscs, 97 arachnids and 1531 insects) have been registered. Some reptiles are typical for the limited desert areas with xerophyte vegetation.

b. Steppes and meadow-steppes

Over the last five years the reduction of the lower part of steppe belt has been observed due to the expansion of semidesert vegetation. Penetration of typical steppe species into meadow-steppe zone is taking place with reduction of its altitudinal limits. According to the data clarified during the recent years 96 species of vertebrates (4 amphibians, 32 reptiles, 19 birds, 41 mammals) and 992 species of invertebrates (81 molluscs, 126 arachnids and 785 insects) have been registered as typical for the steppes. The steppe invertebrate fauna is younger by origin and relatively more uniform.

In Armenia 96 species of vertebrates (4 amphibians, 32 reptiles, 19 birds, 41 mammals) and 992 species of invertebrates (81 molluscs, 126 arachnids and 785 insects) have been registered as typical for the steppes. The steppe invertebrate fauna is younger by origin and relatively more uniform.

Forests

In the result of various natural and antropogenic impacts the natural seed regeneration of the main valuable forest species such as oak and beech is not satisfactory. The stands dominated by *Pinus kochiana*, *Taxus baccata*, *Corylus colurna* and other rare tree species have reduced; at present they occur in the form of patches and sporadic trees. The steppe-meadow vegetation types are often replacing valuable forests. Instability of forest ecosystems has an impact on productivity of agricultural crops as well as diversity of species composition of hay-making areas and pastures. According to the data clarified during the recent years 90 species of vertebrates (6 amphibians, 25 reptiles, 42 birds, 17 mammals) and 2212 species of invertebrates (95 molluscs, 85 arachnids and 2032 insects) have been registered as typical forest species. Forest ecosystems are notable for the highest species diversity of invertebrate animals.

Sub-alpine and alpine meadows

According to the data clarified during the recent years 58 species of vertebrates (3 amphibians, 10 reptiles, 12 birds and 33 mammals) and 508 species of invertebrates (49 molluscs, 12 arachnids and 447

insect) have been registered as typical species. In the fauna of this zone 58 species of vertebrates (3 amphibians, 10 reptiles, 12 birds and 33 mammals) and 508 species of invertebrates (49 molluscs, 12 arachnids and 447 insect) have been registered as typical.

Wetland ecosystems

In the fauna of wetland ecosystems in total 255 species of 7 vertebrate animals (7 amphibians, 5 reptiles, 213 birds and 30 mammals) and 786 species of invertebrates (50 molluscs, 12 arachnids and 724 insect) have been registered. The wetlands of the Ararat valley are habitats and nesting areas for more than 200 species of birds. The fish farms of Armash are the only nesting area in Armenia for the species *Oxyura leucocephala* and *Marmoronetta angustirostris* included in the IUCN Red List.

Some new data have been obtained about distribution of various species, new localities of their occurrence and the changes in species distribution to the north and south. In the Ararat valley new localities have been identified for 12 species of insects registered in the Red Book of Armenia. For the fauna of Armenia the collections of the striped hawk-moth (*Hyles livornica*) in Meghri region are new findings; supposedly its migration route has been located to the south and west from the territory of Armenia. The species form unstable populations in Armenia, due to which it is very rare. The poplar hawkmoth (*Laothoe populeti*) has been also collected many times in Meghri; the zone of its distribution is limited by the north of Turkey and Iran.

New localities of the rare in Armenia European pond turtle (*Emys orbicularis*) have been identified along with the fact that the southern limit of its distribution reaches to the River Araks.

In recent years a lot of work has been implemented to identify and assess the risk of extinction of the rare and vulnerable animals with analysis and overview of existing data, implementation of new studies and assessment of conservation status of the threatened species according to IUCN criteria. In the result the Red Book of Animals of Armenia has been prepared and published, which includes 308 species: 155 vertebrates and 153 invertebrates (Table 1).

Table 1. The species registered in the Red Book of Armenia (2010) and their status by IUCN criteria

Invertebrate animals (Invertebrata)

Status by IUCN criteria / Taxonomic group	Extinct (EX)	Regional y extinct (RE)	Critically endangered (CF)	Endangered (EN)	Vulnerable (VU)	Data deficiency (DD)	Total
Class Gastropoda (Gastropods)		2	10	2			14
Class Bivalvia (Bivalves)			2				2
Type Arthropoda (Arthropods)							
Class Insecta (Insects)	1		38	62	38		139
Sub-total	1	2	50	64	38		155

**Vertebrate animals
(Vertebrata)**

Status by IUCN criteria / Taxonomic group	Extinct (EX)	Regionally extinct (RE)	Critically endangered (CF)	Endangered (EN)	Vulnerable (VU)	Data deficiency (DD)	Total
Class Osteichthes (Fishes)	<i>2 subspecies</i>		<i>2</i>	<i>1</i>	<i>3</i>	<i>2</i>	<i>7</i>
Class Amphibia (Amphibians)			<i>1</i>		<i>1</i>		<i>2</i>
Class Reptilia (Reptiles)			<i>7</i>	<i>2</i>	<i>10</i>		<i>19</i>
Class Aves (Birds)				<i>18</i>	<i>65</i>	<i>13</i>	<i>96</i>
Class Mammala (Mammals)		<i>3</i>	<i>3</i>	<i>10</i>	<i>12</i>	<i>1</i>	<i>29</i>
Sub-total		<i>3</i>	<i>12</i>	<i>31</i>	<i>91</i>	<i>16</i>	<i>153</i>
Total	<i>2</i>	<i>5</i>	<i>62</i>	<i>95</i>	<i>129</i>	<i>16</i>	<i>308</i>

The status of some species is of great concern due to a negative impact of various anthropogenic and natural factors on biodiversity.

After the publication of the Red Book of Armenia (2010) the status of some species registered there has even worsened. Thus, out of 9 localities previously known for Transcaucasian racerunner (*Eremias pleskei*) only 1 has been possible to find, out of 27 localities known for Horváth's toadheaded agama (*Phrynocephalus horvathi*) from scientific sources only 2 has been possible to find along with 1 new identified locality. At present all known populations of the mentioned species are isolated from each other and their extremely limited quantities are gradually reducing (10-12 individuals on 1 ha in 1954, 1-2 individuals on 1 ha in 2013). The main threat is the agricultural use of lands as in recent years in many areas of Ararat plateau large farms are being established as well as fruit orchards and vineyards are being established on previously not cultivated lands. The mentioned species do not come back to cultivated areas. However, there are other data proving the presence of these species in Armavir Region, Goravan Sands and other areas, which means that additional studies are needed.

The status of the steppe runner (*Eremias arguta transcaucasica*), which has only one limited population in Armenia with small areal is of concern. The main threat to the species is again an anthropogenic factor, including urbanization and road construction. The areas and numbers of each of one populations of the spur-thighed tortoise (*Testudo graeca*) located in Armavir and Ararat Regions of Armenia have severely reduced due to land privatization and agricultural use. Urgent studies and conservation interventions are needed for the mentioned species.

The analysis shows that over the last decades the fauna of Armenia has been subject to quantitative and qualitative changes. The comparison of data on vertebrate animals in the Red Book of Armenia (2010) and the Red Book of the Armenian Soviet Socialist Republic (1986) is a good proof for that (the invertebrate animals were not represented in the first Red Book).

Table 2. The numbers of vertebrate animals registered in the Red Book of Armenia

Taxonomic group	Number of 1986	Species 2010
Fishes (Osteichthes)	2	7
Amphibians (Amphibia)	1	2
Reptiles (Reptilia)	11	19
Birds (Aves)	67	96
Mammals (Mammala)	18	29
Total	99	153

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ARMENIAN SITES INCLUDED IN THE “EMERALD NETWORK”

The establishment of “Emerald Network” started during 2007-2008 at the scope of the introduction of “Emerald Network” program in Armenia according to its requirements the 10% sites were chosen and described to be included in the “Emerald Network”.

At present previously proposed all positional sites areestimated. As a consequence of the done works, the list of potential sites included in the network was revised and supplemented with as follows: 1. “Khosrov Forest” State reserve, 2. “Sevan”, 3. “Arpi lake”, 4. “Dilijan”, “Arevik” National parks, 6. “Khor Virap”, 7. “Plane Grove”, 8. “Khustup”, 9. “Aragats Alpine”, 10. “Ijevan” sactuaries, 11. planned “Gnishik” protected landscape, 12. “Ararat salt marshes” Natural monument, 13. “Sjuniqi shibljak”, and 14. “Lori lakes” areas.

Total 14 sites of the Network occupy 346949.8ha and consist of the 11.7% of the country's territory.

N N	Site	ha	Elevation (m)		
			min	max	mean
1	AM0000001 "Khosrov Forest" State reserve	28402.1	858	3065	1776
2	AM0000002 "Sevan" National park	148620.8	1863	2862	1919
3	AM0000003 "Khor Virap" State sanctuary	50.0	815	822	817
4	AM0000004 "Lake Arpi" National park	21133.3	1954	3009	2438
5	AM0000005 "Ijevan" State sanctuary	6151.7	740	2141	1385
6	AM0000006 "Khustup" State sanctuary	2000.1	2032	3201	2601
7	AM0000007 Lori lakes	174.1	1473	1496	1483
8	AM0000008 Impassable brushwood	5.0	857	902	880
9	AM0000009 "Plane grove" State sanctuary	1221.3	630	1195	876
10	AM0000010 "Aragats alpine" State sanctuary	9446.7	2606	4090	3274
11	AM0000011 "Dilijan" National park -	38634.3	890	2631	1621
12	AM0000012 planned "Gnishik" Protected landscape	30300.1	969	2705	1924
13	AM0000013 "Ararat salt marshes" Nature monument	10.0	840	851	845
14	AM0000014 "Arevik" National park -	60800.3	420	3753	1745
Total area		346949.8			

"KHOSROV FOREST" STATE RESERVE

Area: 28402.1 ha*

Location: Ararat Marz

Purpose: protection of Azat River water resources, juniper and oak forests, arid mountain vegetation, rare animals and plants.

*The site area does not correspond to the official size of Specially Protected Nature Area.

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: *Testudo graeca*, *Mauremys caspica*

Habitats: E1.2-Perennial calcareous grassland and basic steppes; E1.3-Mediterranean xeric grassland; E3.4-Moist or wet eutrophic and mesotrophic grassland; F9.3-Southern riparian galleries and thickets; G1.11-Riverine Salix woodland; G1.A7-Mixed deciduous woodland of the Black and Caspian Seas; G3.9-Coniferous woodland dominated by Cupressaceae or Taxaceae.

Together with the above-mentioned species the following Reptiles of national importance are also widespread on the site.

Reptiles: *Vipera (Pelias) eriwanensis*.

"SEVAN" NATIONAL PARK

Area: 148, 621 ha*

Location: Gegharkunik Marz

Purpose: protection of fresh water reserves of the Lake Sevan, fish stocks, natural and historical-architectural complexes; recreation and tourism activities.

*The site area does not correspond to the official size of Specially Protected Nature Area

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: -

Habitats: C1.224-Floating *Utricularia australis* and *Utricularia vulgaris* colonies; E1.2-Perennial calcareous grassland and basic steppes; E1.3-Mediterranean xeric grassland; F3.241-Central European subcontinental thickets; G1.A7-Mixed deciduous woodland of the Black and Caspian Seas; G3.9-Coniferous woodland dominated by Cupressaceae or Taxaceae.

Together with the above-mentioned species the following Reptiles of national importance are also widespread on the site.

Reptiles: *Darevskia praticola*, *Darevskia rostombekovi*, *Darevskia unisexualis*, *Eremias arguta*, *Vipera (Pelias) eriwanensis*.

“KHOR VIRAP”

Area: 50,00 ha.

Location: Ararat Marz

Purpose: protection of wetland ecosystems and typical species of plants and animals.

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: *Mauremys caspica*

Habitats: E1.2-Perennial calcareous grassland and basic steppes; E1.3-Mediterranean xeric grassland; E3.4-Moist or wet eutrophic and mesotrophic grassland.

“LAKE ARPI” NATIONAL PARK

Area: 21133.3 ha

Location: Shirak Marz

Purpose: protection of Lake Arpi, Akhuryan River water resources, the temporary resting place for migrating birds, rare animals and plants.

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles:-

Habitats: E1.2-Perennial calcareous grassland and basic steppes; E3.4-Moist or wet eutrophic and mesotrophic grassland; F3.241-Central European subcontinental thickets; E3.5-Moist or wet oligotrophic grassland.

Together with the above-mentioned species the following Reptiles of national importance are also widespread on the site.

Reptiles: *Vipera (Pelias) eriwanensis*

“IJEVAN” STATE SANCTUARY

Area: 6151.7 ha.

Location: Tavush Marz

Purpose: to protect forest landscapes and specific animal species

*The site area does not correspond to the official size of Specially Protected Nature Area.

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution

Reptiles: *Elaphe quatuorlineata*, *Emys orbicularis*, *Testudo graeca*.

Together with the above-mentioned species the following Reptiles of national importance are also widespread on the site.

Reptiles: *Darevskia praticola*.

“KHUSTUP” STATE SANCTUARY

Area: 2000.1 ha

Location: Syunik Marz

Purpose: to protect sub-alpine and alpine landscapes and corresponding biodiversity.

List of Amphibians and Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: *Elaphe quatuorlineata*.

Habitats: E1.2 - Perennial calcareous grassland and basic steppes; E1.71 - *Nardus stricta* swards; E3.4 - Moist or wet eutrophic and mesotrophic grassland; E3.5-Moist or wet oligotrophic grassland; F3.241-Central European subcontinental thickets; G1.A7-Mixed deciduous woodland of the Black and Caspian Seas; G3.9-Coniferous woodland dominated by Cupressaceae or Taxaceae.

Together with the above-mentioned species the following Reptiles of national importance are also widespread on the site.

Reptiles: not present

“LAKE ARPI” NATIONAL PARK

Area: 21133.3 ha

Location: Shirak Marz

Purpose: protection of Lake Arpi, Akhuryan River water resources, the temporary resting place for migrating birds, rare animals and plants.

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: not present

Habitats: E1.2-Perennial calcareous grassland and basic steppes; E3.4-Moist or wet eutrophic and mesotrophic grassland; F3.241-Central European subcontinental thickets; E3.5-Moist or wet oligotrophic grassland.

Together with the above-mentioned species the following Reptiles of national importance are also widespread on the site.

Reptiles: *Vipera (Pelias) eriwanensis*, *(Anguis fragilis)*, *Lacerta agilis*, *Darevskia valentini*, *D. Nairensis*, *D. Armeniaca*, *Vipera darevskii*.

“IJEVAN” STATE SANCTUARY

Area: 6151.7 ha.

Location: Tavush Marz

Purpose: to protect forest landscapes and specific animal species

*The site area does not correspond to the official size of Specially Protected Nature Area.

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: *Elaphe quatuorlineata, Emys orbicularis, Testudo graeca.*

Habitats: E1.2-Perennial calcareous grassland and basic steppes, E1.3-Mediterranean xeric grassland, F3.241-Central European subcontinental thicket, G1.6-Fagus woodland, G1.A7-Mixed deciduous woodland of the Black and Caspian Seas, G3.9-Coniferous woodland dominated by Cupressaceae or Taxaceae

Together with the above-mentioned species the following Reptiles of national importance are also widespread on the site.

Reptiles: *Darevskia praticola*

“KHUSTUP” STATE SANCTUARY

Area: 2000.1 ha

Location: Syunik Marz

Purpose: to protect sub-alpine and alpine landscapes and corresponding biodiversity.

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: *Elaphe quatuorlineata*

Habitats: E1.2 - Perennial calcareous grassland and basic steppes; E1.71 - *Nardus stricta* swards; E3.4 - Moist or wet eutrophic and mesotrophic grassland; E3.5-Moist or wet oligotrophic grassland; F3.241-Central European subcontinental thickets; G1.A7-Mixed deciduous woodland of the Black and Caspian Seas; G3.9-Coniferous woodland dominated by Cupressaceae or Taxaceae.

“LORI LAKES”

Area: 174.1 ha

Location: Lori Marz

List Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: not present

Habitats: C1.225-Floating *Salvinia natans* mats; E3.4-Moist or wet eutrophic and mesotrophic grassland; E3.5-Moist or wet oligotrophic grassland.

“IMPASSABLE BRUSHWOOD”

Area: 5.0 ha

Location: Syunik Marz

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: *Testudo graeca*

Habitats: E1.3-Mediterranean xeric grassland.

Together with the above-mentioned species the following Reptiles of national importance are also widespread on the site.

Reptiles: *Zamenis hohenackeri*

“PLANE GROVE” STATE SANCTUARY

Area: 1221,3 ha*

Location: Syunik Marz

Purpose: To preotect unic in the Caucasus only plane grove and corresponding biodiversity.

*The site area does not correspond to the official size of Specially Protected Nature Area.

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: *Testudo graeca*

Habitats: C3.55-Sparsely vegetated river gravel banks; E1.3-Mediterranean xeric grassland; G1.37-Irano-Anatolian mixed riverine forest; G1.A7-Mixed deciduous woodland of the Black and Caspian Seas.

Together with the above-mentioned species the following Reptiles of national importance are also widespread on the site.

Reptiles: *Zamenis hohenackeri*.

“ARAGATS ALPINE” STATE SANCTUARY

Area: 9446.7 ha*

Location: Aragacotni Marz

Purpose: to protect glacial Lake Kari and neighbouring alpine meadows

*The site area does not correspond to the official size of Specially Protected Nature Area.

Habitats: E1.71 - *Nardus stricta* swards; E3.4-Moist or wet eutrophic and mesotrophic grassland

Reptiles -not present.

“DILIJAN” NATIONAL PARK

Area: 38 634.3 ha*

Location: Tavush Marz

Purpose: To protect oak and beech forests, yew grove, natural pine ecosystems, mineral spring waterbasins, rare included in the Red book of Armenia plant and animal species

*The site area does not correspond to the official size of Specially Protected Nature Area.

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: *Elaphe quatuorlineata*, *Emys orbicularis*, *Testudo graeca*

Habitats: E1.2-Perennial calcareous grassland and basic steppes; E1.3-Mediterranean xeric grassland; E3.4-Moist or wet eutrophic and mesotrophic grassland; E3.5-Moist or wet oligotrophic grassland; F3.241-Central European subcontinental thickets; G1.11-Riverine Salix woodland; G1.6-Fagus woodland; G1.A7-Mixed deciduous woodland of the Black and Caspian Seas; G3.4E-Ponto-Caucasian *Pinus sylvestris* forests; G3.9-Coniferous woodland dominated by Cupressaceae or Taxaceae.

Together with the above-mentioned species the following Reptiles of national importance are also widespread on the site.

Reptiles: *Darevskia praticola*, *Darevskia rostombekovi*.

“GNISHIK” PLANNED PROTECTED LANDSCAPE

Area: 30300,1 ha*

Location: Vayots Dzor marz

Purpose: to protect landscape and biological diversity of the region.

*The site area does not correspond to the official size of Specially Protected Nature Area.

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: *Elaphe quatuorlineata, Testudo graeca.*

Habitats: E1.2-Perennial calcareous grassland and basic steppes; E1.3-Mediterranean xeric grassland; E3.5-Moist or wet oligotrophic grassland; F3.241-Central European subcontinental thickets; G1.11-Riverine Salix woodland; G1.A7-Mixed deciduous woodland of the Black and Caspian Seas; G3.9-Coniferous woodland dominated by Cupressaceae or Taxaceae; H1-Terrestrial underground caves, cave systems, passages and waterbodies.

Together with the above-mentioned species the following Reptiles of national importance are also widespread on the site.

Reptiles: *Pelobates syriacus, Vipera raddei.*

“ARARAT SALT MARSHES” NATURE MONUMENT

Area: 10,00 ha*

Location: Ararat Marz

Purpose: to protect uniq ecosystems

*The site area does not correspond to the official size of Specially Protected Nature Areas.

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: Not present

Habitats: D6.1-Inland saltmarshes; E5.4113-Althaea officinalis screens; F9.3-Southern riparian galleries and thickets.

“AREVIK” NATIONAL PARK

Area: 60800,3 ha*

Location: Syuniq marz

Purpose: to protect oak forests and open arid forests, unic ecosystems of arid slopes and corresponding biodiversity.

*The site area does not correspond to the official size of Specially Protected Nature Areas.

List of Reptiles found on the site and included in Resolution 6 and habitats included in Resolution 4

Reptiles: *Elaphe quatuorlineata, Mauremys caspica, Testudo graeca.*

Habitats: C3.431-Ponto-Pannonic riverbank dwarf sedge communities; C3.55-Sparsely vegetated river gravel banks; C3.62-Unvegetated river gravel banks; E1.3-Mediterranean xeric grassland; E3.4-Moist or wet eutrophic and mesotrophic grassland; E3.5-Moist or wet oligotrophic grassland; F3.241-Central European subcontinental thickets; G1.11-Riverine Salix woodland; G1.A7-Mixed deciduous woodland of the Black and Caspian Seas; G1.37 - Irano-Anatolian mixed riverine forests; G3.9-Coniferous woodland dominated by Cupressaceae or Taxaceae.

Together with the above-mentioned species the following Reptile species of national importance are also widespread on the site.

Reptiles: *Eumeces schneideri, Montivipera raddei*

List of Reptiles included in Resolution 6

NN	Կոդ/Code	Species	Species included in Red Book of Armenia
1	1219	<i>Testudo graeca</i>	VU
2	1220	<i>Emys orbicularis</i>	-
3	1222	<i>Mauremys caspica</i>	-
4	1279	<i>Elaphe quatuorlineata</i>	-

Testudo graeca

The *Testudo graeca ibera* subspecies is distributed in the North-eastern part of the republic, the *Testudo graeca armeniaca* lives in the country's south (valley of Araks River). The area of *T.g. armeniaca* splits into several isolated populations that from the Ararat valley and in the South of Armenia, Meghri region. Because of habitats loss and poaching, a decrease of quantity has been noticed lately. The guesstimate of tortoise abundance in Armenia is 900–1000 individuals. The species is included in the Red Book of Animals of the Republic of Armenia ("Vulnerable" – VU).

Mauremys caspica

This species can be found in reservoirs of Armavir, Aragatsotn, Kotayk, Ararat, Vayots Dzor, Syunik marzes and in neighborhood of Yerevan. It climbs mountains, reaching elevations ca. 1200 m above sea level. They do not go far from water; they feed both in and out of water on insects, worms, tadpoles, frogs and fish, as well as plants: algae, horsetails, berries, sedges, legumes, etc. During the day feeds or warms up on the shore, at night remains in the bottom of reservoirs, and hibernates there. The biology of the species is not studied in Armenia yet.

Emys orbicularis

Rare species, few in number. In Armenia it was recorded in a number of small reservoirs of Aghstev River valley. It inhabits forests and steppes where they live in swamps, ponds, lakes, rivers and channels. They avoid fast flowing rivers and prefer calm flowing waters, reaches ca. no more than 1000 m above sea level. They do not go far from water, but sometimes it happens that they go more than 500 meters far away. They are active during daytime and at twilight, often come out to the shore and can stay steady for hours and warm up. They are very careful and in case of danger can jump into water and hide in the bottom. In winter they hibernate.

Elaphe quatuorlineata

The length of this species reaches up to 1,8 m. It can be found in Tavush, Shirak, Ararat, Vayots Dzor, Syunik, Lori marzes and in neighborhood of Yerevan. It can be met in steppe and semi-deserts, rocky sites, forest glades at the altitude of up to 2500 m above sea level. Shelters can be rodent nests and deep soil cracks. This large and powerful serpent feeds on small mammals, birds, their eggs and hatchlings.

AUSTRIA / AUTRICHE

REPORT OF THE AUSTRIAN DELEGATE ON NATIONAL ACTIVITIES AND INITIATIVES ON THE CONSERVATION OF AMPHIBIANS AND REPTILES

Regarding Recommendation No. 119 (2006) of the Standing Committee

Werner Kammel

Preliminary remark

Of course in all Austrian "Lands" several measures on saving Amphibians at roads are carried out. Also, many management concepts and actions on important natural areas are providing protection of herptiles, often being part of the framework NATURA 2000. Additionally, there are numerous regions where breeding ponds for Amphibians have been constructed. These activities will not be mentioned in this report any further.

Abstract on species mentioned in Rec. No. 119 (resp. 26 and 27)

➤ Crested Newt complex (*Triturus carnifex*, *T. cristatus*, *T. dobrogicus*)

The main part of the Austrian range of Crested Newts is situated at continental regions East and South of the Alps, bearing a wide distribution and often showing high population densities. They were accordingly considered at designations of Nature 2000 areas.

On the contrary, the population status in Northwestern Austria can be described as critical. In 2015, in Lower Austria there was started a LIFE+ - project (Auenwildnis Wachau) including construction of breeding sites for *Triturus dobrogicus*.

Especially in the states of Tyrol and Salzburg the populations of Crested Newts are severely endangered. In the Tyrolean Inntal the populations of *Triturus carnifex* are in a bad state of preservation. Since 2007 a program on management, monitoring, and construction of breeding ponds has been implemented there. In Salzburg, comparable measurements have been taken on several habitats of Crested Newts (*Triturus carnifex*, *T. carnifex* x *cristatus*).

➤ Natterjack toad (*Bufo calamita*, *Epidalea calamita*)

The two small populations of the natterjack toad are still declining. In Lower Austria (Niederösterreich) the originally known habitat at Gmünd is legally protected now and owned by the WWF, but in this former gravel pit the species is now extinct. However, there were two other sites discovered nearby at private properties without legal protection. In cooperation with the owners, active measurements to improve the living conditions of this species (construction and management of breeding ponds and hibernation places).

A comparable situation appears in Tyrol at the river Lech. At the riverine forests (being part of a NATURA 2000 area) the species is decreasing continuously due to succession processes of the vegetation. Nevertheless, successful measurements were carried out in a nearby gravel pit, in order to create breeding ponds. Additionally, there some efforts are made on breeding in order to support the local population.

➤ Green toad (*Bufo viridis*)

Within the last ten years, several artificial breeding ponds have been constructed in the states of Tyrol, Upper Austria, Vienna, and Styria. In Carinthia, protection measurements have been implemented in several gravel pits. In Styria, some small temporarily flooded meadows and ditches have been established, providing adequate breeding sites too. In 2014, a campaign was started to raise operators' and

workers' awareness in all Styrian gravel pits and sand mines within the range of the distribution area of the species, in order to declare measurements considering its specific habitat requirements (different posters).

➤ **Spadefoot Toad (*Pelobates fuscus*)**

South of the Austrian Alps this species is close to extinction. In Styria, between 2007 and 2010, a successfull recovery program, including construction of new habitats, was organised. Thus, three new populations could be established. The four known autochthonous sites are situated at privately owned fish breeding ponds or lakes. One site is legally protected (Natura 2000), on two other sites this species is protected and monitored by application of amphibian fences.

➤ **European Pond Turtle (*Emys orbicularis*)**

The sites of pond turtles at the riparian forests of Donau and March, East of Vienna, are resumed to be the only autochthonous population in Austria (maybe except the „Tullner Auen“ West of Vienna). The whole area is now part of the National Park „Donau-March-Thaya-Auen“. This population is estimated to bear about 1.500 adults. Since 1997 there has been running a species protection program. All known egg laying sites (more than 60) are protected against predators. The program includes research, monitoring, and raising public awareness (e.g. to reduce losses caused by traffic).

➤ **Dice Snake (*Natrix tessellata*)**

Rec. No. 26 (recalled at Rec. No. 119) is focussed on the states of Styria and Carinthia.

Since 2009 a considerable species protection program has been implemented in Carinthia. Besides work on research and monitoring at several sites, measurements have been executed in order to improve habitat requirements such as construction of basking places, reduction of woods and barriers at highly frequented roads.

In Styria, the water quality of the formerly heavily polluted river systems has been restored more than 30 years ago. Meanwhile, their water quality is classified mainly as "good" or "very good". A survey on the situation of the Dice Snake carried out from 2010 to 2014, shows a wider distribution than assumed and demonstrates an ongoing dispersion - but widespread low population densities as well. Several isolated populations outside the known distribution area could be detected. Despite some constructions of power plants, the main threats nowadays are caused by lack of a proper land habitat. This year, a first small project has been implemented in order to enlarge riverine woods at one of these isolated areas.

➤ **Aesculapian Snake (*Zamenis longissimus*)**

The Species Action Plan (T-PVS/Inf (2006) 19) on the conservation of *Zamenis longissimus* is focussed on isolated populations, North of its main range. The isolated population in Tyrol (Zillertal) is not mentioned there (despite the preliminary draft resolution of the last meeting in Malmö in 2003). Nevertheless, its current situation should be mentioned here:

At this area, showing a diameter of about 5km, a survey and several measurements were implemented: The river and its woods as a core habitat structure have been revitalized and numerous potential egg laying sites as well as proper basking places were constructed. At the moment, the main threat is caused by traffic.

➤ **Hungarian Meadow Viper (*Vipera ursinii rakosiensis*)**

In the meanwhile, the meadow viper is assumed to be extinct in Austria. Nevertheless, a reintroduction at Lake Neusiedl (Seewinkel) was considered as part of a Hungarian LIFE-project. In 2009, a specific survey was able to define potential areas for this intention. Its results are pointing out that the management measures of these meadows, handled by the National Park Authorities, should be changed (esp. by reducing the intensity of grazing). In this regard no further actions have taken place.

Additional Remark

➤ **Sand Lizard (*Lacerta agilis*)**

The Action Plan for the Conservation of the Sand Lizard (*Lacerta agilis*) in Northwest Europe (T-PVS/Inf (2006) 18) does not mention the Austrian situation. In Austria, this species shows a large distribution but there exists a substantial lack of data. Several experts of different states are assuming that the sand lizard suffers under the most severe decline of all Austrian herptiles within the last two decades. Its condition should be considered as highly critical.

BELGIUM / BELGIQUE

RECOMMANDATION N°. 119 (2006) DU COMITÉ PERMANENT DE LA CONVENTION DE BERNE SUR LA CONSERVATION DE CERTAINES ESPÈCES MENACÉES D'AMPHIBIENS ET DE REPTILES EN EUROPE, ADOPTÉE PAR LE COMITÉ PERMANENT LE 30 NOVEMBRE 2006

- RAPPORT DE LA BELGIQUE (RÉGION WALLONNE) -

LACERTA AGILIS

En Belgique, le Lézard des souches n'est présent qu'en Wallonie, où son aire de répartition est limitée à la Lorraine. Le nombre de sites de présence s'est retrouvé au cours des dernières décennies. Ainsi, pour la période 2012-2014, l'espèce n'a pu être détectée que dans 49 des 63 stations connues après 1985. Ces stations font l'objet d'un suivi selon un cycle de 3 ans (cycle actuel : 2013-2015).

Un plan d'action en faveur de cette espèce a été rédigé par un expert mandaté par le Département de la Nature et des Forêts (voir [annexe](#)).

Ce plan comporte :

- des informations relatives à l'espèce (statut, cycle de vie, habitats, aire de répartition) ;
- la liste des menaces auxquelles l'espèce fait face ;
- la liste des sites occupés et des informations y afférentes (surface, propriétaire, menaces ...) ;
- des objectifs stratégiques et opérationnels ;
- pour chaque objectif opérationnel, une liste des actions proposées avec une identification des responsables et collaborateurs ainsi que du niveau de priorité.

Ce plan fait référence aux objectifs et actions proposés dans le plan d'action européen. Sa mise en œuvre a débuté en 2009.

Mise en œuvre

Grâce à l'appui d'un expert chargé de mission, des contacts ont été pris en vue de la préservation des principaux sites de présence. Ainsi, 18 stations, dont plusieurs anciennes carrières, sont protégées ou en voie de l'être (réserve naturelle domaniale ou agréée). Ces sites ont soit été acquis, soit fait l'objet d'une convention de mise à disposition dans un but de préservation de l'espèce.

Par ailleurs, l'espèce est présente dans un camp militaire dont certaines parties sont soumises à la gestion du Département de la Nature et des Forêts dans le cadre d'un plan de développement de la nature (post LIFE). Ce camp militaire héberge une part importante de l'effectif global de l'espèce ; des conseils de gestion spécifiques à l'espèce sont formulés à l'égard de l'autorité gestionnaire.

Des contacts étroits sont également en cours avec le gestionnaire du réseau ferré qui a l'obligation de prendre en compte l'espèce lors d'importants travaux de modernisation d'une ligne ferroviaire qui abrite l'espèce. Le Département de la Nature et des Forêts a délivré une dérogation aux mesures de protection des espèces qui impose plusieurs mesures d'atténuation et de compensation, dont notamment la mise en défens de certaines zones et la capture et mise en enclos temporaire d'individus.

Par ailleurs, des contacts avec un gestionnaire routier ont permis le déboisement d'une zone occupée par l'espèce.

Le projet LIFE « Herbages » (<http://www.life-herbages.eu/>) actuellement en cours mène des actions de préservation et de restauration de certains habitats devenus rares, dont notamment plusieurs habitats importants pour l'espèce. Ces actions pourraient conduire à la préservation ou à la restauration de sites occupés ou favorables à l'espèce.

TRITURUS CRISTATUS

Wallonie

La présence de l'espèce est connue en Wallonie dans 262 sites. De nombreux sites ont été découverts ces dernières années et il est probable que la connaissance de la répartition de l'espèce ne soit pas exhaustive.

Le Triton crêté est une espèce visée par la Directive 92/43 dite « Directive habitats » ; 22 sites Natura 2000 ont été désignés notamment pour la protection de cette espèce et comprennent environ 40 % des sites connus pour abriter l'espèce. Environ 20 % sont entièrement ou partiellement compris dans un site protégé.

A l'heure actuelle, les actions en faveur de l'espèce ne sont pas structurées par un plan d'action (qui permettrait par exemple de cibler au mieux les interventions), mais la réalisation d'un tel plan est envisagée dans le cadre d'un projet LIFE intégré actuellement soumis à l'approbation de la Commission européenne.

Le Triton crêté étant généralement présent en zone agricole, la préservation de l'espèce passe souvent par la sensibilisation des gestionnaires des terrains en vue de la conservation, voire de la restauration des mares favorables à l'espèce. Dans différentes zones de Wallonie, une sensibilisation spécifique s'est mise en place avec l'appui de conseillers agricoles (Natagliwal - <http://www.natagliwal.be/>), du Département de la Nature et des Forêts (DNF) et du Département de l'Etude du Milieu Naturel et Agricole (DEMNA).

Un projet soutenu par la Commission européenne, le Gal « Tige et Chavées » (<http://www.tiges-chavees.be/environnement>) a développé une action particulière visant la récréation de mares favorables à cette espèce, laquelle a permis de restaurer 10 mares et de creuser 26 nouvelles mares. Le projet Interreg Lorraine (<http://www.interreg-lorraine.eu/>) a également permis de mener des actions spécifiques à cette espèce et a notamment conduit au creusement de près de 20 mares. Un certain nombre de mares ont en outre été creusées dans plusieurs réserves naturelles dont notamment dans la réserve de l'Hermeton, à Feschaux et à Fraire. Le projet LIFE « prairies bocagères » actuellement en cours (<http://www.lifeprairiesbocageres.eu/>) a également parmi ses objectifs de préserver ou recréer des mares favorables au triton crêté.

En application du programme européen de développement rural, la Wallonie s'est dotée d'un outil de financement de mesures de restauration et de gestion des habitats et habitats d'espèces visés par Natura 2000. Celui-ci prévoit notamment une mesure permettant de financer la récréation de mares pour le triton crêté. Le creusement ou la restauration de 44 mares ont pu être financés grâce à cette aide.

Par ailleurs, un programme de suivi de l'espèce prévoit de vérifier la présence de l'espèce dans chacun des sites connus (et autant que possible de rechercher de nouveaux sites) au cours de périodes de 6 ans (périodicité prévue pour le rapportage à la Commission européenne). Cette recherche s'effectue grâce à l'appui de nombreux naturalistes bénévoles et d'agents du DEMNA et du DNF.

UNOFFICIAL TRANSLATION BY BORYANA RAVUTSOVA, TRAINEE AT THE BIODIVERSITY UNIT**RECOMMENDATION NO. 119 (2006) OF THE STANDING COMMITTEE ON THE CONSERVATION OF CERTAIN ENDANGERED SPECIES OF AMPHIBIANS AND REPTILES IN EUROPE, ADOPTED BY THE STANDING COMMITTEE ON 30 NOVEMBER 2006****- REPORT BY BELGIUM (WALLOON REGION) -*****LACERTA AGILIS***

In Belgium, the Sand Lizard is only present in Wallonia where its distribution is limited to Lorraine. The number of Sand Lizard sites has decreased over the past decades. Thus, for the period 2012-2014, the species could only be detected in 49 out of the 63 resorts known after 1985. These resorts are subject to monitoring on a 3-year cycle (current cycle: 2013-2015).

An action plan in favour of this species was drawn by an expert commissioned by the Wildlife and Forestry Department (see the annex).

This plan contains:

- information about the species (status, life cycle, habitats, distribution);
- the list of threats the species is facing;
- the list of sites occupied and relevant information about these sites (surface, owner, threats...);
- strategic and operational objectives;
- for each operational objective, a list of actions proposed with identification of the persons in charge and the associates as well as of the priority level.

This plan refers to the objectives and actions proposed in the European action plan. Its implementation started in 2009.

Implementation

Contacts have been made for the purpose of preservation of the main Sand Lizard sites thanks to a mission head expert's support. Thus, 18 resorts, including several old quarries, are protected or will be protected soon (State or recognised nature reserve). These sites were either purchased or are subject to a contract on their provision for the purpose of the species preservation.

Moreover, the species is present on a military camp, parts of which are managed by the Wildlife and Forestry Department within the framework of a nature development plan (post LIFE). This military camp is sheltering a significant part of the species' population size; management advices specific to the species are provided towards the management authority.

Close contacts with the railway network manager, that has the obligation to take the species into account during significant works on modernising railway lines sheltering this species, are also ongoing. The Wildlife and Forestry Department issued an exception to the species protection measures that forces several mitigation and compensation measures, including in particular the banning (mise en défens) of certain areas as well as the capture and the temporary enclosure of individuals.

Furthermore, contacts with the transport road manager allowed the forest clearing of an area occupied by the species.

The ongoing LIFE project "Herbages" (<http://www.life-herbages.eu/>) is carrying preservation and restoration actions for certain habitats that have become rare, including in particular several habitats

important for the species. These actions could lead to the preservation or restoration of sites occupied by or favourable to the species.

TRITURUS CRISTATUS

Wallonia

It is known that in Wallonia the species is present on 262 sites. Numerous sites have been found in the last few years and probably the knowledge on species distribution is not exhaustive.

The Crested Newt is mentioned in the Directive 92/43 or “Habitats Directive”; 22 Natura 2000 sites have been designated especially for the protection of this species and contain around 40 % of the sites known to shelter the species. Around 20 % are completely or partially comprised in a protected site.

At present, the actions in favour of the species are not structured by an action plan (that would allow for example a better targeting of the interventions), but the realisation of such a plan is contemplated within the framework of an integrated LIFE project currently waiting for approval by the European Commission.

Usually present in agricultural areas, the Crested Newt is often preserved through awareness of land managers for the purpose of its conservation, or even restoration of ponds favourable to the species. In different areas of Wallonia, a specific awareness has been set up with the support of agricultural counsellors (Natagriwal - <http://www.natagriwal.be/>), the Wildlife and Forestry Department (DNF) and the Natural and Agricultural Environmental Studies Department (DEMNA).

The project Gal « Tige et Chavées » supported by the European commission (<http://www.tiges-chavees.be/environnement>) developed a special action aiming at the recreation of ponds favourable to the species, which allowed to restore 10 ponds and to dig 26 new ponds. The project Interreg Lorraine (<http://www.interreg-lorraine.eu>) has also permitted to carry special actions for this species, in particular, it led to the digging of nearly 20 ponds.

A number of ponds have also been dug in several nature reserves, in particular in the Hermeton reserve, in Feschaux and in Fraire.

Preservation and recreation of ponds favourable to the Crested Newt are among the priorities of the ongoing LIFE project “prairies bocagères” (<http://www.lifeprairiesbocageres.eu>).

In accordance with the European rural development programme, Wallonia acquired a tool financing restoration and management measures for Natura 2000 natural habitats and habitats of species. The latter foresees in particular a measure that allows to finance the recreation of ponds for the Crested Newt. Thanks to this aid, digging and restoration of 44 ponds could have been financed.

Otherwise, a monitoring programme for the species foresees to verify the presence of the species in each site known (and as far as possible to search for new sites) during 6-year reference periods (frequency foreseen for the reporting to the European Commission). This research is being realised thanks to the support of numerous volunteer naturalists and DEMNA and DNF agents.

CROATIA / CROATIE

FOLLOW-UP OF RECOMMENDATION NO. 119 (2006) OF THE STANDING COMMITTEE ON THE CONSERVATION OF CERTAIN ENDANGERED SPECIES OF AMPHIBIANS AND REPTILES IN EUROPE

Prepared by the State Institute for Nature Protection, June 2015

Approved by the Ministry of Environmental and Nature Protection, Nature Protection Directorate

The activities in regards to the Recommendation No. 119 (2006) on the conservation of five endangered species of amphibians and reptiles in Croatia are as follows:

- All species covered by the Recommendation and occurring in Croatia: *Lacerta agilis*, *Vipera ursinii macrops*, *Zamenis longissimus*, *Rana latastei*, *Triturus carnifex* and *Triturus dobrogicus*, are strictly protected by the Nature Protection Act (OG 80/13) and Ordinance on strictly protected species (OG 144/13).
- In developing new [Red List and Red Book of Amphibians and Reptiles of Croatia \(Jelić et al., 2012\)](#), categories and criteria from the IUCN version 3.1. (IUCN 2001) were used. Of the total of 61 amphibian and reptile species recorded on Croatian territory, 19 of them or 31% are found on the red list, of whom 8 (13%) are threatened, i.e. belong to the categories of endangered (EN) and vulnerable (VU) species. A large number of near threatened species (NT), and species with deficient data (DD) points to the need for further herpetological research, in order to carry out their more effective conservation. In the Red Book of Amphibians and Reptiles of Croatia *Vipera ursinii macrops* and *Rana latastei* are listed as Endangered (EN), *Triturus dobrogicus* and *Triturus carnifex* as Near Threatened (NT), *Lacerta agilis* and *Zamenis longissimus* as least concerned (LC) species.

Vipera ursinii

National management plan with the action plan for *Vipera ursinii* protection is compiled but not yet officially adopted. The process started in 2010 and the international expert group was formed to supervise the drafting of the action plan. Members of the expert group were Dušan Jelić previously from the State Institute for Nature Protection in Croatia, Balint Halpern (MME BirdLife Hungary), Ljiljana Tomović (Institute of Zoology, Faculty of Biology, University of Belgrade), Rastko Ajtić (Institute for Nature Conservation of Serbia) and Jelka Crnobrnja-Isajlović (Department of Biology and Ecology, Faculty of Sciences and Mathematics, University of Niš) from Serbia. State Institute for Nature Protection together with Croatian Herpetological Society – HYLA prepared this Plan based on results which are product of many field research as well as research of taxonomy, population ecology and genetics.

In 2011, the Croatian Herpetological Society commenced collaboration with the Zagreb Zoo on setting up ex situ conservation and research of endangered amphibians and reptiles. The mentioned program in 2012 was named the Centre for the ex situ Conservation of Amphibians and Reptiles. Within the Centre approximately 30 meadow vipers has already been raised and returned to the wild (Sv. Brdo, Paklenica National Park). Monitoring and estimation of population size of *Vipera ursinii* was made in Paklenica National Park during 2013, and results of those studies were ground for preparing and writing *Vipera ursinii* national monitoring protocol (scheme and programmes) for reporting according Article 17 of the Habitats Directive. Additionally in 2014, Public Institution for Management of Paklenica National park together with Croatian Herpetological Society – HYLA and with support of State Institute for Nature Protection applied project: Protection of Natura 2000 priority species *Vipera ursinii macrops* in Natura

2000 site, Velebit Mountain (LIFEURSINIICRO) for the LIFE programme, but project was not accepted for financing.

In Croatia, there are five Natura 2000 (ecological network) sites (SCIs) designated for *Vipera ursinii*, and these sites are covering almost complete distribution area of *Vipera ursinii*.

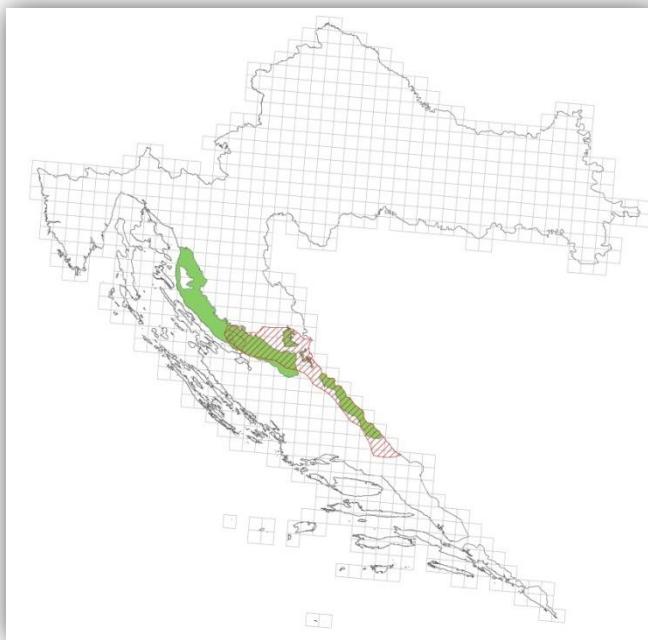


Image 1 Potential distribution of Meadow Viper according to the Red Book Jelić et al., 2012 (red striped polygon), Natura 2000 sites (SCIs) designated for Meadow Viper (green polygons)

Rana latastei

Former research was conducted mainly by the Croatian Herpetological Society-HYLA from 2005 up to 2011 with numerous new localities registered and old ones confirmed. Currently known distribution area for *Rana latastei* in Croatia is cca 310 km² but range of *R. latastei* in Croatia is very fragmented with several distant subpopulations with highest percentage of individuals living in the Motovun forest area. Detailed researches determine general and specific causes of threat and pressure to this species. Major threats are destruction, fragmentation and degradation of habitat: forest clearing for agriculture, urban development, and regulation of water habitats - major regulation of rivers Mirna and Butoniga, canalization of watercourses, vegetation clearing in the buffer area of watercourses (streams and canals) and water extraction. All results give ground for defining conservation activities which should be implemented through the national action plan or through sector activities (forestry, agriculture, architecture, physical planning).

For *Rana latastei* there are seven Natura 2000 (ecological network) sites (SCIs) designated in Croatia, and these sites are covering almost complete distribution area of species. Also national monitoring protocol (scheme and programme) for reporting according Article 17 of the Habitats Directive is made and it is based on mapping, monitoring, research on localities and scientific research.

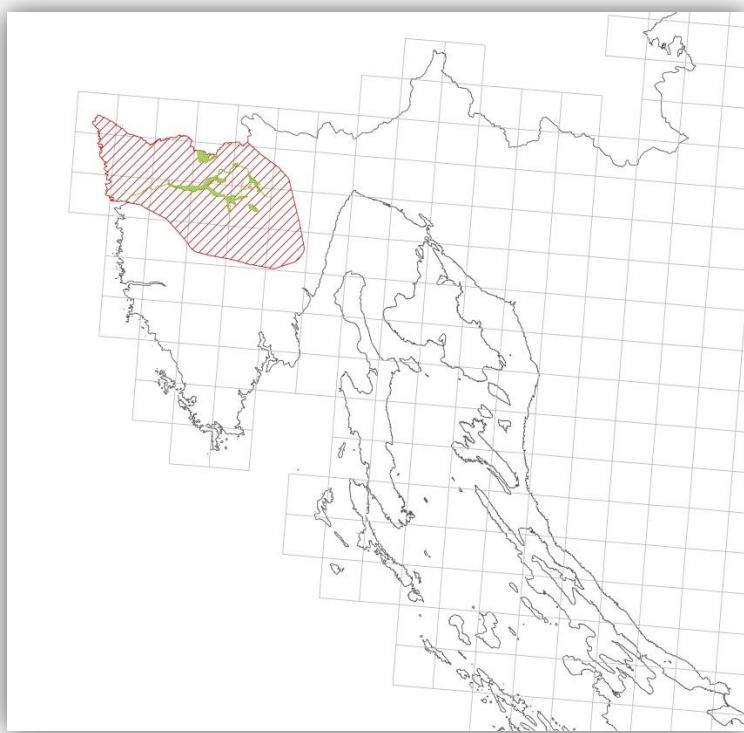


Image 2 Potential distribution of Italian agile frog according to the Red Book Jelić et al., 2012 (red striped polygon), Natura 2000 sites (SCI) designated for Italian Agile Frog (green polygons)

Triturus carnifex* and *Triturus dobrogicus

Both species were researched during 2009-2010 in the scope of defining the Croatian NATURA 2000 proposal. Research was financed by the State Institute for Nature Protection and conducted by the Croatian Natural History Museum. The distribution of the species was confirmed and the sites for Natura 2000 proposal were defined. In central Croatia in the lowlands of Sava River these two species form a zone of hybridization, which complicates their identification. For *Triturus dobrogicus* there are eleven Natura 2000 (ecological network) sites (SCIs) designated in Croatia, and for *Triturus carnifex* thirteen of them. The national monitoring protocols (scheme and programmes) for reporting according Article 17 of the Habitats Directive are made for both species and implementation of programmes started in 2014, but did not proceed during 2015 due to lack of financing. However, mapping of this species on the entire territory of the Republic of Croatia is currently conducted in the scope of the EU Natura 2000 Integration Project – NIP (2014-2016).

In 2008, the State Institute for Nature Protection organised the restoration of two ponds in Sunger in Gorski kotar. These ponds represent a habitat and breeding place for nine species of amphibians, including Italian crested newt, but they were overgrown and buried and in need for concrete conservation action.

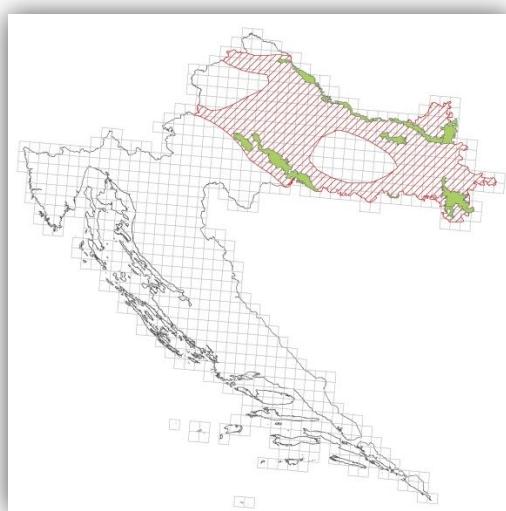


Image 3 Potential distribution of Danube Crested Newt according to the Red Book Jelić et al., 2012 (red striped polygon), Natura 2000 sites designated for Danube Crested Newt (green polygons)

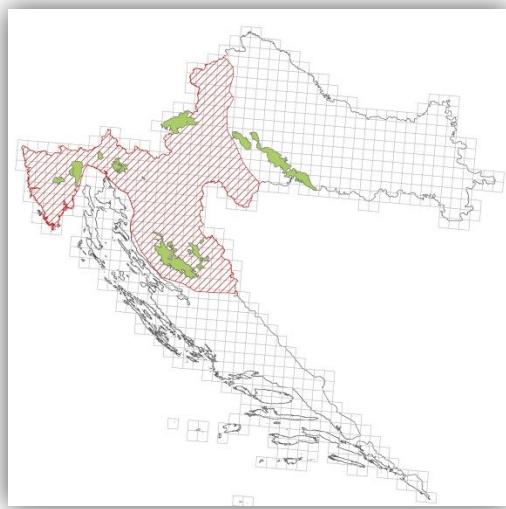


Image 4 Potential distribution of Italian Crested Newt according to the Red Book Jelić et al., 2012 (red striped polygon), Natura 2000 sites designated for Italian Crested Newt (green polygons)

Zamenis longissimus and Lacerta agilis

Zamenis longissimus and *Lacerta agilis* are species which are abundant in the southern part of the areal, to which Croatia belongs. Both species are present on the most part of the land territory of Croatia (excluding the islands) (Jelić et al., 2009). Gaps in the distribution data are the consequence of the insufficient mapping but will be improved through activities in the scope of the EU Natura 2000 Integration Project – NIP (2014-2016), which is carried out on the entire territory of the Republic of Croatia. Both species are numerous and widespread, and no specific conservation actions, besides monitoring on national level, are planned in the near future.

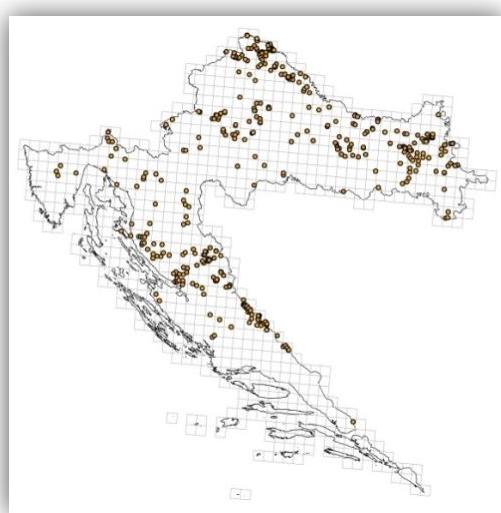


Image 5 Georeferenced localities of findings of Sand Lizard

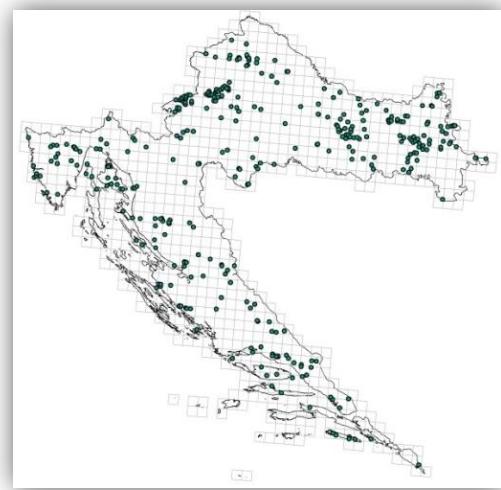


Image 6 Georeferenced localities of findings of Aesculapian Snake

**FOLLOW-UP OF RECOMMENDATION NO. 140 (2009) OF THE STANDING COMMITTEE
ON THE CONTROL OF THE SMALL INDIAN MONGOOSE (*HERPESTES AUROPUNCTATUS*) IN
SOUTHEAST EUROPE**

Prepared by the Ministry of Environmental and Nature Protection, Nature Protection Directorate

Mongoose is listed as a game species in the Hunting Act of the Republic of Croatia. This enables hunting lease holders in the southern part of Croatia, where mongoose population is established, to control it using hunting methods. Hunters control mongoose population on islands, especially on the island of Hvar.

Additionally, the control of mongoose population on the island of Mljet, which is in part a National Park, is planned in the scope of the EU operational programme funding.

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- SINP database, 2015

ESTONIA / ESTONIE

CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE AND NATURAL ESTONIAN COUNTRY REPORT ON THE CONSERVATION OF AMPHIBIANS AND REPTILES

Authority concerned:

Ministry of the Environment
 Nature Conservation Department
 Narva mnt 7a
 Tallinn / Estonia

Estonia has 10 native amphibian species and 5 native reptile species. There is one established alien amphibian species *Pelophylax ridibundus* (*Rana ridibunda*) and there are 2 casual non-breeding alien reptile species (*Trachemys scripta* and *Graptemys kohni*).

Legislation, action plans and monitoring

All Estonian native amphibians and reptiles are protected species divided in to one of three protection categories (see tables 1 and 2), with protection category one being the strictest. According to the Nature Conservation Act (from here on NCA) protected species are protected through the habitats (protected areas) and also by specimen protection.

Intentional killing of a specimen of a protected species, except for the purposes of euthanasia, is prohibited, also it is prohibited to capture or intentionally disturb specimens of protected species during the breeding, brood rearing, wintering or migration season (some exceptions may apply).

The protection of all known habitats of species in the 1st protection category will be ensured by formally protecting these habitats (e.g by formation of protected areas, limited-conservation areas or determination of species protection sites). For the species in the 2nd protection category at least 50 percent of registered habitats and for the 3rd category at least 10% of registered habitats shall be protected according to the NCA. See species status and protection categories in tables 1 and 2.

Special species protection sites have so far been established for two amphibians and one reptile species (10 for great crested newt, 6 for natterjack toad and 1 joint species conservation site for sand lizard and natterjack toad). Special species protection sites are being prepared for the common spadefoot toad and also additional special species protection sites will be designated for the sand lizard and natterjack toad. The species protection sites have strict regulations on the habitat use to protect the species. For example in the great crested newt special protection site: the releasing fish to the water bodies is prohibited, in the 50 m zone of east and south margins of waterbody planting trees is prohibited, for the use of herbicides and pesticides special permission needs to be acquired.

Table 1 Status of Estonian reptiles

Latin name	Common name	Protection category	Estonian red list assessment 2008	Habitats Directive assessment 2013
<i>Anguis fragilis</i>	slow worm	III	LC	
<i>Lacerta agilis</i>	sand lizard	II	VU	Unfavourable-Inadequate
<i>Natrix natrix</i>	grass snake	III	NE	
<i>Zootoca vivipara</i> (<i>Lacerta vivipara</i>)	viviparous lizard	III	NE	
<i>Vipera berus</i>	common European adder	III	NE	

Table 2 Status of Estonian amphibians

Latin name	Common name	Protection category	Estonian red list assessment 2008	Habitats Directive assessment 2013
<i>Bufo bufo</i>	common toad	III	LC	
<i>Bufo viridis</i>	European green toad	I	CR	Unfavourable-Bad (declining)
<i>Epidalea calamita</i> (<i>Bufo calamita</i>)	natterjack toad	I	EN	Unfavourable-Bad
<i>Lissotriton vulgaris</i> (<i>Triturus vulgaris</i>)	smooth newt	III	LC	
<i>Pelobates fuscus</i>	common spadefoot	II	VU	Unfavourable-Inadequate (improving)
<i>Pelophylax kl.</i> <i>esculentus</i> (<i>Rana esculanta</i>)	edible frog	III	NE	
<i>Rana arvalis</i>	moor frog	III	LC	Favorable
<i>Rana lessonae</i>	pool frog	III	NE	Favorable
<i>Rana temporaria</i>	common frog	III	LC	Favorable
<i>Triturus cristatus</i>	great crested newt	II	VU	Unfavourable-Inadequate (improving)

NCA states that for the protected species, where deemed necessary, special species action plans are compiled. These action plans give an overview of the biology of the species, main threats and plan actions for their research, conservation and monitoring in detailed manner for 5 years and in more general manner for long term time scale. Action plans also contain budget for the first 5 years. Such action plans have been compiled and adapted for the natterjack toad and great crested newt. Compiled and soon to be adopted are action plans for the brown frogs (*Rana arvalis*, *Rana temporaria*), green frogs (*Pelophylax kl. esculentus*, *Rana lessonae*), spadefoot toad, green toad and sand lizard.

Based on state biodiversity monitoring plan there is yearly monitoring in 22 monitoring locations for natterjack toad, common spadefoot toad and great crested newt. There is also yearly monitoring of sand lizard in 5 locations.

There have been also county based amphibian inventories carried out in 12 out of 15 counties in Estonia, last 3 counties (Hiiumaa, Saaremaa and Pärnumaa) to be carried out in coming years. As our knowledge was lacking in sand lizard distribution and status- 2 years of inventories were carried out with the help of Dutch expert Jöran Janse prior to compiling the species action plan.

Conservation actions

Based on actions foreseen in the species action plans each year there are actions financed by the state budget. The main tasks have been digging of new water bodies for amphibian breeding. Also the restoration of breeding waters has been very important. As small waterbodies traditionally used for cattle, washing water, garden water or flax have been neglected, many small waterbodies have overgrown with tall vegetation (mainly *Salix* sp.) or have needed to be cleaned of mud. Also the introduction of fish to small waters is serious problem and there have been actions to eradicate fish by draining and cleaning the ponds.

For the natterjack toad there have been each year voluntary based work camps to clear the overgrowing coastal meadows. These camps are very popular and have been happening for more than 10 years. Organisation of these camps has been supported by the state budget.

For the past years there has been effort to increase breeding success by growing the tadpoles to metamorphosed toadlets in cages in costal habitats, to reduce the predation and mortality. There has also been effort to make a population of Estonian natterjack toads from small island Manilaid in Copenhagen zoo. These animals have successfully been breeding since 2013 and 2-3 egg-strings have been annually brought to Estonia, to rise them in the rearing centre and released back to their natal island.

One of the biggest concerns is the mortality of amphibians on the roads during their spring and autumn migration. Although the conflict sites on main roads are detected, Estonia has not managed yet to construct high quality amphibian migration tunnels for the main locations where the migration routes cross the roads. Amphibian fences and tunnels are planned to build for the main routes in 2015-2017, but so far we have had voluntary campiness in spring to collect and help amphibians cross the roads safely. These campaigns have also been successful in mapping the places where the tunnels are most urgently needed.

LIFE projects

Besides state and voluntary organised actions there have been several large LIFE projects focusing the actions to the amphibians.

For the **natterjack toad** there have been 3 projects entirely or partly focusing on that species:

- 2001-2004 Coastal Meadows - Boreal Baltic Coastal Meadow Preservation in Estonia (LIFE00 NAT/EE/007083)
- 2001-2005 Häädemeeste - Restoration and management of the Häädemeeste wetland complex (LIFE00 NAT/EE/007082)
- 2005-2012 BALTCOAST - Rehabilitation of the Baltic coastal lagoon habitat complex (LIFE05 NAT/D/000152)

These projects have focused on the restoration of the coastal meadows (initiation of grazing and mowing) the very important habitat of the natterjack toad in Estonia. Also small shallow breeding waters have been restored on coastal meadows through these projects.

One of Estonias' most successful LIFE projects (voted to the list of Best LIFE Nature Projects 2009) was the project „Protecting the **Great Crested Newt** in the Eastern Baltic“ carried out in 2004-2008, which included international corporation, sharing of knowledge and habitat restoration and management.

The Great Crested Newt is in Estonia in its' distributions' northern range. The main area of distribution is in hillocks of South-East of Estonia and also one locality in Pandivere upland more to the north.

The species is very selective of its' habitat and is present only in mosaic landscapes with good quality water bodies, and good foraging and hibernation sites. As the species has poor migratory ability the good quality terrestrial and aquatic components should be within 50 m of each other. More info on the habitat requirements of great crested newt in the Estonia and also Denmark and Lithuania can be seen in "[Protection of the Great Crested Newt Best Practice guidelines](#)".

The project adjusted the Danish habitat management and restoration techniques to the regional and local conditions found in Finland and Estonia.

The project concentrated on the restoration and protection of a network of suitable habitats, targeting 95-97% of the species' populations in Estonia and Finland. The main action was to ensure there were enough ponds for breeding. As of December 2008, 240 ponds had been created in Estonia and 21 restored in Finland, as well as 12 'demonstration ponds' in different habitat types in Denmark. Before the habitat management and pond reconstruction started *T. cristatus* was present in less than 25% of ponds in the project areas. No relocation (assisted migration) was carried out in Estonia. Monitoring of water bodies

created by the project in spring 2008 showed that 127 (>50%) ponds surveyed in Estonia had been colonised by the newt, and this increasing colonisation trend has continued.

A further aim of the project was to use the experience gained to produce a best practice guidelines and country or county wide action plans for the great crested newt were created in participating countries.

DragonLIFE 2010-2015 - Securing *Leucorrhinia pectoralis* and *Pelobates fuscus* in the northern distribution area in Estonia and Denmark (LIFE08NAT/EE/000257)

The aim of this project is to protect small and isolated populations of yellow-spotted whiteface (*Leucorrhinia pectoralis*) and an amphibian species, common spadefoot toad and to preserve and restore small freshwater bodies that these semi-aquatic species need to complete their complex life-cycles.

The lack of suitable wetlands and freshwater bodies is the main reason why the populations of the project's target species, have declined considerably in the second half of the 20th century in Estonia and Denmark.

At the same time yellow-spotted whiteface and common spadefoot toad can be considered as so called umbrella species to a large number of aquatic and semi-aquatic species that inhabit these small, clean, fish-free freshwater bodies (e.g. *Triturus cristatus*, *Aeshna viridis*, *Leucorrhinia albifrons*, *Graphoderus bilineatus*, *Dytiscus marginalis*, *Dytiscus latissimus*).

The main task of the project has been the restoration or creation of breeding ponds for the target species. These ponds are colonized quite quickly. In June and July 2014, ponds restored by the project from 2010 to 2013 were inventoried. Common spadefoot toad was breeding in 23 ponds (36% of all restored/created ponds), and these ponds offer breeding sites for other species such as *Rana arvalis*, *R. temporaria*, *R. lessonae*, *Triturus vulgaris*. The first results of 2015 inventories show increase in *Pelobates*- for example in Piirissaare island common spadefoot tadpoles were present in 5 out of 10 restored ponds (2014 in 3 ponds).

Very important has also been the publication of field keys of amphibians and dragonflies in Estonian, as this has led to more citizen science interest and reporting on these species. The project has also compiled leaflet on removing of alien species from ponds. [More information on the project and all publications available on the project site as pdf-s.](#)

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FRANCE / FRANCE

CONSERVATION DES REPTILES ET DES AMPHIBIENS

Rapport de la France – 2015

Selon les données de l'IUCN de 2008¹, 41 espèces de reptiles et 39 espèces d'amphibiens sont recensées sur le territoire français métropolitain. La majorité de ces espèces ont été évaluées : la situation n'est pas préoccupante pour près de 60% des espèces évaluées d'amphibiens et de reptiles. En revanche, 19% des reptiles et 21% des amphibiens sont menacés de disparition du territoire. Sept espèces de reptiles sur 37 sont particulièrement menacées (Lézard d'Aurelio, Vipère d'Orsini, Emyde lépreuse, Lézard du Val d'Aran, Lézard de Bonnal, Tortue d'Hermann, Lézard ocellé), de même que 7 espèces d'amphibiens sur 34 (Grenouille des champs, Salamandre de Lanza, Pélobate brun, Grenouille des Pyrénées, Sonneur à ventre jaune, Pélobate cultripède, Salamandre noire).

Les sept reptiles particulièrement menacés mentionnés ci-dessus font l'objet d'un plan national d'actions pour leur préservation (PNA). A noter qu'il s'agit d'un PNA mutualisé pour les 3 lézards des Pyrénées. Deux des amphibiens particulièrement menacés font l'objet d'un PNA (Pélobate brun, Sonneur à ventre jaune).

Font également l'objet d'un plan national d'actions la Cistude d'Europe et le Crapaud vert (voir en PJ le tableau des PNA reptiles et amphibiens).

Il y a en outre 5 sous-espèces et/ou populations de reptiles et amphibiens, dont le Lézard agile de Garzon. Cette sous-espèce est protégée, mais il n'y a pas d'actions particulières menées en sa faveur.

Les plans nationaux d'actions pour les reptiles et les amphibiens cités ci-dessus sont en cours de mise en œuvre (voir tableau en annexe). A leur terme, il sera procédé à l'évaluation de leur efficacité et de leurs résultats. Le premier bilan devrait concerner le PNA en faveur de la Tortue d'Hermann.

A noter que la Tortue d'Hermann et la Vipère d'Orsini ont bénéficié d'un programme LIFE.

Rappel du cadre réglementaire de la protection des reptiles et des amphibiens en France

Conformément au code de l'environnement (articles L. 411-1 et R. 411-1 à R. 411-5), des arrêtés interministériels imposent des mesures de protection de nombreuses espèces de la faune et de la flore sauvages en raison d'un intérêt scientifique particulier ou des nécessités de la préservation du patrimoine biologique.

Faisant suite à des dispositions réglementaires qu'il convenait de réviser pour tenir compte de l'évolution de situations biologiques, l'arrêté du 19 novembre 2007 fixe les listes des amphibiens et des reptiles protégés sur l'ensemble du territoire et les modalités de leur protection. Dans cet arrêté, les mesures de protection sont variables selon les espèces : protection des œufs, des nids et des individus et/ou des sites de reproduction et des aires de repos des animaux, interdiction de perturbation intentionnelle des animaux.

Figurent en particulier parmi les espèces protégées en France au moins toutes les espèces d'amphibiens et de reptiles qui sont mentionnées à l'annexe IV de la directive européenne (n° 92/43 du 21 mai 1992) concernant la conservation des habitats naturels ainsi que de la faune et de la flore sauvages.

¹ La liste rouge pour les reptiles et les amphibiens de France est en cours d'actualisation et devrait être publiée prochainement.

En outre, les espèces de vertébrés protégées menacées d'extinction et dont l'aire de répartition excède le territoire d'un département font l'objet de l'arrêté du 9 juillet 1999. Font partie de ces espèces le Pélobate brun, le Crapaud vert, la Grenouille des champs et l'Emyde Lépreuse. Pour ces espèces, les dérogations à leur protection stricte sont accordées par le ministre chargé de la protection de la nature.

Dans le cadre de la stratégie nationale pour la biodiversité et dans l'objectif de maintenir une bonne qualité écologique de son territoire, notamment par la sauvegarde des espèces les plus menacées, un outil complémentaire au dispositif législatif et réglementaire protégeant les espèces a été institué (article L.414-9 du Code de l'environnement) ; ce sont les plans nationaux d'actions (PNA) en faveur des espèces menacées, qui accompagnent et hiérarchisent les actions de conservation développées sur le terrain, généralement pour une durée de cinq ans.

SUIVI DE LA RECOMMANDATION N°119 (2006) SUR LA CONSERVATION DE CERTAINES ESPÈCES EN DANGER D'AMPHIBIENS ET DE REPTILES EN EUROPE

Parmi les cinq espèces figurant dans la recommandation N°119 de la Convention de Berne, quatre sont présentes en France: Triton crêté *Triturus cristatus* (*T. cristatus* et *T. carnifex*), Vipère d'Orsini, *Vipera ursinii*, Couleuvre d'Esculape, *Zamenis longissimus* et Lézard des souches, *Lacerta agilis*. La Grenouille de Lataste, *Rana latastei* n'est pas représentée.

Ces quatre espèces présentes sont strictement protégées par l'arrêté du 19 novembre 2007 fixant les listes des amphibiens et des reptiles protégés sur l'ensemble du territoire et les modalités de leur protection.

Un certain nombre de mesures concrètes de conservation ont été entreprises au niveau national, conformément aux dispositions de la recommandation, mais seule la Vipère d'Orsini fait l'objet d'un plan national d'actions (PNA).

Il convient de préciser que le complexe *Triturus cristatus* inclut l'espèce *Triturus cristatus* et une autre espèce présente en France, *Triturus carnifex* (*T. dobrogicus* et *T. karelinii* ne sont pas présentes). Cette dernière est très localisée en France et étant 100 % introduite, il n'est envisagé aucune action de conservation pour cette espèce.

La Vipère d'Orsini, *Vipera ursinii*

La Vipère d'Orsini a fait l'objet d'un **plan de restauration publié en 2005**, sur 4 ans. L'objectif général de ce plan consistait à arrêter le déclin de l'espèce et à assurer sa conservation sur le long terme. Pour conforter la démarche de conservation entreprise, un **programme LIFE intitulé « Conservation des populations françaises de vipères d'Orsini »** a été mis en œuvre de 2006 à 2011 pour élaborer et soutenir une stratégie de conservation sur le long terme. Ce programme a été porté par l'agence régionale pour l'environnement de la région Provence-Alpes-Côte-d'Azur, avec le partenariat du conservatoire des espaces naturels (CEN) de cette région, l'office national des forêts (ONF), l'école pratique des hautes études à Montpellier, l'office national de la chasse et de la faune sauvage (ONCFS) et le syndicat mixte d'aménagement et d'équipement du mont Ventoux. Le budget du programme s'est élevé à 1 492 540 €.

Les principaux résultats obtenus sont les suivants :

- distribution de l'espèce : 13 sites ont été étudiés, soit 8 152 ha. L'espèce est également présente sur 3 autres sites, non éligibles dans le cadre du programme LIFE.
- diagnostics pastoraux : réalisés sur 6 sites, ils ont permis de démontrer la compatibilité de la gestion pastorale avec le maintien des habitats favorables à la Vipère d'Orsini.
- variabilité génétique : étudiée à partir d'échantillons (écailles) prélevées sur 615 individus. Cette variabilité est faible. Elle doit être comparée à celles d'autres populations européennes. Une

différence entre les populations de plusieurs sites a été constatée. Il pourrait s'agir d'une réponse à une variation ancienne de facteurs écologiques locaux entre les sites étudiés.

- coupes forestières et débroussaillement : réalisés afin de maintenir l'ouverture des milieux menacés par la dynamique forestière, ouvertures à pérenniser par le pastoralisme afin de créer des conditions favorables au maintien et à l'accroissement des populations de Vipère d'Orsini. 550 ha ont été ainsi réhabilités, dépassant les objectifs proposés dans le programme LIFE (± 400 ha).
- expérimentation de la gestion des milieux par le brûlage dirigé, destiné à remplacer l'écoubage traditionnellement pratiqué : plusieurs méthodes ont été expérimentées. Le brûlage hivernal sur sol humide (de novembre à février) en mosaïque est le plus adapté. Il n'impacte pas l'espèce en hibernation, favorise le maintien de végétation susceptible de servir d'abri aux vipères, et préserve les espèces proies (sauterelles et criquets).
- suivi des habitats et de la recolonisation des sites par les vipères : la caractérisation des habitats a été réalisée sur 8 sites (par indicateurs de qualité de l'habitat et de la ressource alimentaire) et s'est révélée positive sur 7 sites. La recolonisation a été étudiée sur 3 sites (par pose d'émetteurs sur les vipères) et s'est révélée positive sur 1 site. La faible densité de vipères sur les 2 autres sites ne permet pas encore de dégager des conclusions probantes.
- surveillance des sites et sensibilisation du public : réalisée sur 3 sites à forte fréquentation (Ventoux, montagne de Lure, Préalpes de Grasse), les journées d'observation et d'enquête ont permis de détecter les comportements défavorables à l'espèce (circulation motorisée principalement) et d'informer le public. La formation des personnels concernés avait été réalisée au préalable.
- communication et sensibilisation. C'était une partie importante du programme LIFE. Elle a concerné divers publics cibles : les acteurs locaux (lettres d'information, réunions de concertation, etc.), les gestionnaires d'espaces naturels (édition et diffusion d'un guide technique consacré à la gestion et au suivi des populations) et le grand public (exposition itinérante, conférences auprès des scolaires, site internet...).

A l'issue du programme LIFE, un « **Plan national d'actions en faveur de la Vipère d'Orsini** » rédigé par le conservatoire des espaces naturels (CEN PACA) a été mis en place par le ministère chargé de l'écologie pour 5 ans, soit **2012-2016**. Ce document stratégique prévoit les actions à mettre en œuvre et les moyens à mobiliser pour assurer la poursuite des actions engagées, en valorisant l'expérience acquise pendant le programme LIFE :

- poursuite du suivi des populations de vipères et de leurs habitats : recherche de populations susceptibles d'occuper des sites favorables (Préalpes, Mercantour, Baronnies provençales, entre autres). Il s'agit notamment de rechercher des populations non encore observées et de tenter de mettre en évidence des éléments de connectivité entre elles.
- poursuite de la restauration des habitats potentiellement favorables : débroussaillements et coupes forestières, brûlages dirigés, maintien ou retour du pastoralisme par des mesures agro-environnementales dans les sites Natura 2000 (8 actuellement).
- renforcement des actions en direction du grand public : surveillance de sites sensibles, poursuite des actions de sensibilisation, etc.

Cette stratégie est déclinée en 4 objectifs (valorisation de l'expérience acquise, connaissance des populations, protection et gestion des massifs concernés par la présence de l'espèce, information et sensibilisation du public) déclinés en 30 fiches actions.

Le Conservatoire d'espaces naturels de Provence-Alpes-Côte d'Azur (CEN PACA) est chargé de l'animation et de la mise en œuvre du PNA. Le bilan est présenté lors de comités de pilotage annuels.

A l'heure actuelle, la mise en œuvre de ce PNA a principalement permis :

- de préciser le statut de trois populations situées sur des sites non éligibles à travers le programme LIFE tout en appliquant les méthodes élaborées dans ce dernier programme. **De nouveaux enjeux de gestion à court et moyen termes sont mis en avant ;**
- de poursuivre le suivi de référence mis en œuvre lors du programme LIFE ;
- de poursuivre l'évaluation des mesures de gestion mises en œuvre lors du programme LIFE ;
- de sensibiliser et communiquer auprès de publics clés ;
- de maintenir les relations/échanges avec les partenaires internationaux ;
- de former de nouveaux acteurs (Parc National du Mercantour et Parc Naturel Régional des Baronnies Provençales) et de poursuivre/actualiser la formation des acteurs impliqués avant la mise en place du PNA ;
- d'être présent auprès de commanditaires de projets d'aménagements, des bureaux d'études, de collectivités territoriales et de la Direction régionale de l'environnement, de l'aménagement et du logement (DREAL) PACA pour la bonne prise en compte de la sensibilité de l'espèce à travers les politiques et projets d'aménagements du territoire (stations de ski notamment) ;
- d'être présent auprès des acteurs de la gestion des espaces naturels : animateurs Natura 2000, ONF, ONCFS, Centre d'Etudes et de Réalisations Pastorales Alpes-Méditerranée (CERPAM), collectivités territoriales (syndicats mixtes, conseils généraux, parcs naturels régionaux, communes et communautés de communes) ;
- de poursuivre les efforts de recherche de nouvelles populations sur les 92 000 hectares d'habitats favorables à l'espèce, modélisés lors du programme LIFE. Il faut noter la difficulté de mener à bien cette action prioritaire : les besoins humains (efforts de prospections) nécessaires pour détecter l'espèce sont élevés (la probabilité de détection individuelle par un herpétologue compétent est estimée entre 0,32 et 0,66 %).

Le Triton crêté, *Triturus cristatus*

L'espèce *Triturus cristatus* est reconnue comme menacée dans de nombreuses régions et fait l'objet d'une attention particulière.

A l'heure actuelle, pas moins de 201 sites Natura 2000 ont été désignés au titre, entre autres, de cette espèce, et 12 arrêtés préfectoraux de protection de biotope (APPB) ont été pris. Cette espèce est également déterminante Zone naturelle d'intérêt écologique, faunique et floristique (ZNIEFF) dans 9 régions et déterminante dans la réflexion de la mise en place de la Trame verte et bleue (TVB) dans 9 régions. Enfin, le Triton crêté ne fait pas partie de la liste des espèces sélectionnées dans la stratégie de création d'aires protégées (programme SCAP) précisément parce que déjà largement couvert en termes d'aires protégées.

Le Triton crêté a fait l'objet d'une fiche d'information Office national de l'eau et des milieux aquatiques (ONEMA)/Muséum National d'Histoire Naturelle (MNHN) (2013), proposant quelques recommandations pour limiter l'impact de certaines activités risquant de perturber l'espèce ou de détruire son habitat (fiche disponible notamment sur le lien suivant : http://inpn.mnhn.fr/fichesEspece/Triturus%20cristatus-139_avril2013.pdf).

Le Lézard des souches, *Lacerta agilis*

N'étant pas inscrite à l'annexe II de la DHFF, aucun site Natura 2000 n'est désigné au titre de cette espèce. Par contre, le Lézard agile est cité dans 100 sites Natura 2000 à la rubrique "Autres espèces". Par ailleurs, 9 arrêtés préfectoraux de protection de biotope (APPB) ont été pris. Cette espèce est également déterminante ZNIEFF dans 10 régions et déterminante dans la réflexion de la mise en place de la Trame verte et bleue (TVB) dans 6 régions. Enfin, le Lézard agile fait partie de la liste des espèces sélectionnées

dans la stratégie de création d'aires protégées (programme SCAP). En effet, si le Lézard agile est une espèce encore banale dans le nord-est de la France, sa situation s'est en revanche fortement dégradée dans d'autres secteurs du territoire national, notamment dans l'ouest, ce qui a motivé, entre autres, son inscription à la SCAP. Les éléments de connaissance actuels concourent à placer cette espèce à un niveau assez élevé de prise en compte en termes de protection et de surveillance au niveau national.

La Couleuvre d'Esculape, *Zamenis longissimus*

Cette espèce ne fait pas partie en France des espèces menacées, et elle ne ressort pas comme espèce SCAP, ni même comme espèce déterminante ZNIEFF. En revanche, elle est déterminante dans la mise en place de la Trame verte et bleue dans 4 régions. Il n'est globalement pas envisagé d'actions particulières pour cette espèce, son seul statut d'espèce intégralement protégée (arrêté du 19 novembre 2007) étant jugé suffisant pour le moment. Il convient toutefois de préciser que cette espèce est citée dans 86 sites Natura 2000 à la rubrique "autres espèces", et dans 9 arrêtés préfectoraux de protection de biotope (APPB).

Suites données

En ce qui concerne la Vipère d'Orsini, le bilan du PNA effectué dès la fin 2015 (voire son évaluation) détermineront la poursuite du PNA.

La réflexion menée actuellement conjointement par le Ministère chargé de l'écologie et le Service du patrimoine naturel du Muséum national d'histoire naturelle afin de désigner de nouvelles espèces susceptibles de faire l'objet d'un plan national d'actions n'est pas achevée. Il est toutefois peu probable que les trois autres espèces citées dans la Recommandation n°119 soient jugées prioritaires. Elles pourront toutefois bénéficier d'actions menées sur une ou plusieurs autres espèces, en termes de mutualisation et de recherche de synergies.

En tout état de cause, les actions et les études menées sur les différentes espèces sont assez nombreuses, et la prise de conscience en France de la menace qui pèse sur elles (Triton crêté et Lézard agile plus spécifiquement) est réelle.

TABLEAU DE BORD - Plan Nationaux d'Actions amphibiens et reptiles (au 16 juin 2015)

Espèce	Nombre d'espèces	Période d'application	DREAL coordinatrice	Animateur national	Rédacteur	Fonds européens	Commentaires
GROUPE REPTILES							
Lézard ocellé	1	2012-2016 (2017 car retard pris au démarrage)	Poitou-Charentes	Société Herpétologique de France (SHF)	Bureau d'études OBIOS		9 régions concernées : Aquitaine, Auvergne, Languedoc-Roussillon, Limousin, Midi-Pyrénées, Pays de la Loire, Poitou-Charentes, PACA, Rhône-Alpes
Lézard des Pyrénées	3	2013-2017	Midi-Pyrénées	Nature Midi-Pyrénées	Nature Midi-Pyrénées		Espèces : Lézards du Val d'Aran, d'Aurelio et de Bonnal. 2 régions concernées : Aquitaine, Midi-Pyrénées
Vipère d'Orsini	1	2012-2016	Provence-Alpes-Côte d'Azur (PACA)	Conservatoire d'Espaces Naturels de PACA	Conservatoire d'Espaces Naturels de PACA	Life (2006/2011)	1 région concernée : PACA
Emyde lépreuse	1	2012-2016	Languedoc-Roussillon	Groupe Ornithologique du Roussillon	Groupe Ornithologique du Roussillon		1 région concernée : Languedoc Roussillon
Tortue d'Hermann	1	2009-2014	Provence-Alpes-Côte d'Azur (PACA)	Centre d'Etudes des Ecosystèmes de Provence	Centre d'Etudes des Ecosystèmes de Provence	Life (2010/2014)	2 régions concernées : Corse, PACA (Var)
Cistude d'Europe	1	2011-2015	Rhône-Alpes	Conservatoire du Patrimoine Naturel de Savoie			11 régions concernées : Aquitaine, Auvergne, Bourgogne, Centre, Corse, Languedoc-Roussillon, Limousin, Midi-Pyrénées, Poitou-Charentes, PACA, Rhône-Alpes
GROUPE AMPHIBIENS							
Sonneur à ventre jaune	1	2011-2015 (2016 car retard pris au démarrage)	Lorraine	ONF	Bureau d'études ECOTER		18 régions concernées : Alsace, Aquitaine, Auvergne, Bourgogne, Champagne-Ardenne, Centre, Franche-Comté, Haute Normandie, Ile de France, Languedoc-Roussillon, Limousin, Lorraine, Midi-Pyrénées, Pays de la Loire, Picardie, Poitou-Charentes, PACA, Rhône-Alpes
Pélobate brun	1	2014-2018	Lorraine	ONF	BIOTOPE puis Muséum National d'Histoire Naturelle		3 régions concernées : Alsace, Lorraine, Centre
Crapaud vert	1	2014-2018	Lorraine	ONF	BIOTOPE puis Muséum National d'Histoire Naturelle		4 régions concernées : Alsace (Bas-Rhin, Haut-Rhin), Lorraine (Moselle), Corse, Franche Comté (Doubs)

UNOFFICIAL TRANSLATION
PREPARED BY MS BORYANA RAVUTSOVA, TRAINEE AT THE BIODIVERSITY UNIT

REPTILE AND AMPHIBIAN CONSERVATION

Report by France – 2015

According to the IUCN data for 2008², 41 reptile and 39 amphibian species are inventoried in metropolitan France. The majority of these species were evaluated: the situation does not give cause for concern about almost 60% of the evaluated amphibian and reptile species. However, 19% of the reptiles and 21% of the amphibians are threatened with extinction from the area. Seven out of 37 reptile species are particularly threatened (Aurelio's rock lizard, Meadow Viper, Spanish pond turtle, Aran rock lizard, Pyrenean rock lizard, Hermann's tortoise, Ocellated lizard) as well as 7 out of 34 amphibian species (Moor frog, Lanza's alpine salamander, *Pelobates fuscus*, Pyrenean frog, Yellow-bellied toad, *Pelobates cultripes*, Alpine salamander).

The seven reptiles particularly threatened above-mentioned are subject to a national action plan on their conservation (NAP). It should be noted that it is a NAP common to the 3 Pyrenean lizards. Two of the amphibians particularly threatened are subject to a NAP (*Pelobates fuscus*, Yellow-bellied toad).

European pond turtle and European green toad are also subject to a national action plan (see the table of reptile and amphibian NAP attached).

Furthermore, there are 5 subspecies and/or populations of reptiles and amphibians, including *Lacerta agilis garzoni*. This subspecies is protected but there are no particular actions carried in its favour.

National action plans for the reptiles and amphibians above-mentioned are currently being implemented (see the table attached). Their efficiency and results will be evaluated in the final stage of these plans. The first overview should concern the NAP for the Hermann's tortoise.

It should be noted that the Hermann's tortoise and the Meadow Viper benefited by a LIFE programme.

Summary of the legal framework on reptile and amphibian protection in France

According to the Environmental code (articles L. 411-1 and R. 411-1 to R. 411-5), interministerial rulings impose protection measures for numerous wild fauna and flora species because of a specific scientific interest or the necessity of conserving biological heritage.

Following administrative provisions that it has been appropriate to revise in order to take into account the biological situations evolution, the ruling of 19 November 2007 sets the lists of amphibians and reptiles protected throughout the territory and the terms of their protection. In this ruling, protection measures vary depending on species: protection of eggs, nests and individuals and/or animal breeding and resting sites, prohibition of deliberated disturbance of animals.

At least all amphibian and reptile species mentioned in Annex IV of the European directive (No. 92/43 of 21 May 1992) on the conservation of natural habitats and of wild fauna and flora are among the protected species in France.

² The red list of reptiles and amphibians in France is currently being updated and should be released soon.

Furthermore, protected vertebrate species that are threatened with extinction and the distribution of which exceeds the territory of one department are subject to the ruling of 9 July 1999. Pelobates fuscus, European green toad, Moor frog and Spanish pond turtle are among these species. Exemption to their strict protection is granted by the Minister for the protection of nature.

A tool additional to the legislative and regulatory framework on protection of species was set up within the national biodiversity strategy and for the purpose of maintaining a good ecological quality of its territory, especially by the conservation of the most threatened species (article L.414-9 of the Environmental code); national action plans (NAP) in favour of threatened species complement and prioritise the conservation actions developed on the spot, usually for a period of five years.

FOLLOW-UP OF THE RECOMMENDATION NO.119 (2006) ON THE CONSERVATION OF CERTAIN ENDANGERED SPECIES OF AMPHIBIANS AND REPTILES IN EUROPE

Four out of five species included in the recommendation No.199 of the Bern Convention are present in France: Crested Newt *Triturus cristatus* (*T. cristatus* and *T. carnifex*), Meadow Viper, *Vipera ursinii*, Aesculapian Snake, *Zamenis longissimus* and Sand Lizard, *Lacerta agilis*. Italian Agile Frog, *Rana latastei* is not represented.

These four species present are strictly protected by the ruling of 19 November 2007 setting the lists of amphibians and reptiles protected throughout the territory and the terms of their protection.

A number of concrete conservation measures have been undertaken at a national level, according to the provisions of the recommendation, but only the Meadow Viper is subject to a national action plan (NAP).

It should be specified that the complex *Triturus cristatus* includes the species *Triturus cristatus* as well as another species present in France, *Triturus carnifex* (*T. dobrogicus* and *T. karelinii* are not present). The latter is very localised in France and being 100 % introduced, there is no conservation action considered for this species.

The Meadow Viper, *Vipera ursinii*

The Meadow Viper was subject to a four-year **restoration plan released in 2005**. The main objective of this plan was to counter the species' decline and to ensure its long-term conservation. In order to strengthen the conservation step taken, a **LIFE programme entitled “Conservation of French populations of Orsini’s viper”** was implemented from 2006 to 2011 to develop and support the conservation strategy in the long-term. This programme was carried by the regional environmental agency for the region Provence-Alpes-Côte-d’Azur, in partnership with the conservatory of natural areas (CEN) of this region, the national forests office (ONF), the école pratique des hautes études in Montpellier, the national office for hunting and wildlife (ONCFS) and the mixed syndicate for spatial planning and equipment of mont Ventoux. The budget of the programme amounted to 1 492 540 €.

The main results obtained are as follow:

- distribution of the species: 13 sites were studied, that is to say 8 152 ha. The species is also present in 3 other sites that are not eligible within the framework of the LIFE programme.
- pastoral diagnosis: realised on 6 sites, they have permitted to prove the compatibility of pastoral management with maintaining of habitats favourable to the Meadow Viper.
- genetic variability: studied from samples (scales) taken from 615 individuals. This variability is low. It has to be compared with the variability of other European populations. A difference between the populations of several sites was observed. This could be a response to an ancient variation of local ecological factors between the sites studied.

- forest cuttings and clearing: realised to maintain the opening up of threatened natural habitats by forest dynamics, openings up should be perpetuated by pastoralism in order to create conditions favourable to the maintenance and the growth of the Meadow Viper populations. 550 ha have been rehabilitated, going beyond the objectives proposed in the LIFE programme (\pm 400 ha).
- natural habitats management experimentation by a State controlled burn (brûlage dirigé), doomed to replace the controlled burn traditionally used (écobuage): several methods have been experimented. The mosaic winter burn on wet ground (from November to February) is the most appropriate. It does not have an impact on the species hibernating, promotes the maintenance of vegetation likely to serve as a shelter for the vipers, and preserves prey species (grasshoppers and locusts).
- monitoring of the habitats and the sites recolonization of the vipers: habitats characterisation was realised on 8 sites (using habitat and food resource quality indicators) and it proved to be positive on 7 sites. The recolonization was studied on 3 sites (by putting transmitters on vipers) and it proved to be positive on 1 site. Low density of vipers on the other 2 sites does still not allow the drawing of convicting conclusions.
- sites monitoring and public awareness: realised on 3 sites of wide attendance (Ventoux, mountain Lure, Grasse Prealps), observation and survey days permitted to detect the performances unfavourable to the species (mainly motor traffic) and to inform the public. Training of the staff concerned was first realised.
- communication and awareness. It has been an important part of the LIFE programme. It concerned various target audiences: the local stakeholders (newsletters, concertation meetings, etc.), the managers of natural areas (edition and distribution of a technical guidance on management and monitoring of populations) and the wide audience (touring exhibition, lectures to schoolchildren, websites...).

At the end of the LIFE programme, a “**National action plan for the Meadow Viper**” drawn up by the conservatory of natural areas (CEN PACA) was set up by the Ministry for the ecology for a period of 5 years, that is to say for the period **2012-2016**. This strategic document foresees the actions to be implemented and the means to be mobilised to ensure the continuation of the actions undertaken, by making better use of the experience gained during the LIFE programme:

- continuation of the monitoring of the viper populations and habitats: search of populations likely to occupy favourable sites (Prealps, Mercantour, Baronnies provençales, among others). In particular, this includes to search populations that have not been observed yet and to try to bring out elements of connectivity among themselves.
- continuation of the restoration of habitats potentially favourable: forest clearings and cuttings, State controlled burns (brûlages dirigés), maintenance of or returning to pastoralism through agri-environment measures in the Natura 2000 sites (currently 8).
- strengthening of the actions towards the wide audience: monitoring of the sensitive sites, continuation of the awareness actions, etc.

This strategy is divided into 4 objectives (valuation of the experience gained, knowledge of the populations, protection and management of the massifs concerned by the presence of the species, public information and awareness) divided into 30 action sheets.

The Conservatory of natural areas of Provence-Alpes-Côte d’Azur (CEN PACA) is in charge of the coordination and the implementation of the NAP. The overview is presented at annual steering committees.

Currently, the implementation of the NAP has mainly allowed to:

- specify the status of three populations situated on sites that are not eligible within the framework of the LIFE programme, while applying the methods developed in this latter programme. **New stakes of management in short- and mid-term are put forward;**
- continue the background monitoring implemented during the LIFE programme;
- continue the evaluation of the management measures implemented during the LIFE programme;
- aware and communicate to key audiences;
- maintain contact and exchanges with the international partners;
- train new stakeholders (Mercantour National Park and Baronnies Provençales Regional Nature Park) and continue/update the training of stakeholders involved in the setting of the NAP;
- work with sponsors of spatial planning projects, consultancy firms, territorial collectivities and the Regional directorate of environment, spatial planning and housing (DREAL) PACA in order to take effectively into account the species' sensibility in the spatial planning policy and projects (ski resorts in particular);
- work with managers of natural areas: Natura 2000 coordinators, ONF, ONCFS, Centre for Studies and Pastoral Realisations Alps-Mediterranean (CERPAM), territorial collectivities (mixed syndicates, general councils, regional nature parks, communes and commune communities);
- continue the efforts on searching for new populations on the 92 000 hectares of habitats favourable to the species that have been modelled during the LIFE programme. It should be stressed on the difficulty to succeed this priority action: the human needs (exploration efforts) necessary to detect the species are high (the probability of individual detection by a competent herpetologist is estimated at between 0,32 and 0,66 %).

Crested Newt, *Triturus cristatus*

The species *Triturus cristatus* is recognised as threatened in numerous regions and is subject to special attention.

At present, at least 201 Natura 2000 sites have been designated for the purpose, among others, of this species, and 12 prefectoral orders of biotope protection (APPB) have been made. This species is Natural zone of ecological, fauna and flora interest (ZNIEFF) determining in 9 regions. It is also determining in the reflexion process on the setting up of the Green and blue infrastructure (TVB) in 9 regions.

Finally, the Crested Newt is not included in the list of species selected within the strategy on the creation of new protected areas (SCAP programme), precisely because it is already largely covered by protected areas.

In 2013, the National office of water and aquatic environments (ONEMA) and the National museum of natural history (MNHN), both together, prepared a fact sheet on the Crested Newt proposing some recommendations aimed to limit the impact of certain activities that may disturb the species or destroy its habitat (the fact sheet can be found on the following link: http://inpn.mnhn.fr/fichesEspece/Triturus%20cristatus-139_avril2013.pdf).

Sand Lizard, *Lacerta agilis*

There is no Natura 2000 sites designated for this species because the latter is not included in the Annex II of the Habitats Directive. By contrast, the Sand Lizard is mentioned in 100 Natura 2000 sites in the heading "Other species". Moreover, 9 prefectoral orders of biotope protection (APPB) have been made. This species is ZNIEFF determining in 10 regions. It is also determining in the reflexion process on

the setting up of the Green and blue infrastructure (TVB) in 6 regions. Finally, the Sand Lizard is included in the list of species selected within the strategy on the creation of new protected areas (SCAP programme). Actually, if the Sand Lizard is still an ordinary species in the North East France, its situation has been nonetheless strongly degraded in other parts of the national territory, especially in the West. This motivated, among others, its inscription in the SCAP. The actual knowledge elements contribute to this species to be taken quite highly into account in terms of protection and monitoring at national level.

Aesculapian Snake, *Zamenis longissimus*

This species is not threatened in France and it is not a SCAP or ZNIEFF determining species. By contrast, it is determining in the setting up of the Green and blue infrastructure in 4 regions. No special actions are contemplated for this species; its only status of species completely protected (order of 19 November 2007) has been considered as sufficient for the moment. However, it should be specified that this species is mentioned in 86 Natura 2000 sites in the heading “Other species” as well as in 9 prefectoral orders of biotope protection (APPB).

Follows-up given

Concerning the Meadow Viper, the NAP assessment realised by the end of 2015 (see its evaluation) will determine the continuation of the NAP.

The reflexion currently carried out jointly by the Ministry for the ecology and the Natural heritage service of the National museum of natural history for the purpose of designating new species that could be subject to a national action plan has not finished. However, it is unlikely to the three other species mentioned in the Recommendation No.199 to be considered as priority. They may nevertheless benefit from actions carried on one or several other species in terms of mutualisation and seeking synergies.

In any case, there are many actions and studies on the different species that are carried out, as well as a real growing awareness in France on the threat to these species (especially to the Crested Newt and the Sand Lizard).

SCOREBOARD
National Action Plans amphibians and reptiles (16 June 2015)

Species	Number of species	Period of application	Coordinating DREAL	National coordinator	Writer	European funds	Comments
REPTILES							
Ocellated lizard	1	2012-2016 (2017 because of a delay in the start-up)	Poitou-Charentes	Herpetological society of France (SHF)	OBIOS consultancy firm		9 regions concerned: Aquitaine, Auvergne, Languedoc-Roussillon, Limousin, Midi-Pyrénées, Pays de la Loire, Poitou-Charentes, PACA, Rhône-Alpes
Pyrenean rock lizard	3	2013-2017	Midi-Pyrénées	Nature Midi-Pyrénées	Nature Midi-Pyrénées		Species: Aran rock lizard, Aurelio's rock lizard and Pyrenean rock lizard. 2 regions concerned: Aquitaine, Midi-Pyrénées
Meadow Viper	1	2012-2016	Provence-Alpes-Côte d'Azur (PACA)	Conservatory of natural areas PACA	Conservatory of natural areas PACA	Life (2006/2011)	1 region concerned: PACA
Spanish pond turtle	1	2012-2016	Languedoc-Roussillon	Ornithological group of Roussillon	Ornithological group of Roussillon		1 region concerned: Languedoc Roussillon
Hermann's tortoise	1	2009-2014	Provence-Alpes-Côte d'Azur (PACA)	Centre for Ecosystem Studies of Provence	Centre for Ecosystem Studies of Provence	Life (2010/2014)	2 regions concerned: Corse, PACA (Var)
European pond turtle	1	2011-2015	Rhône-Alpes	Conservatory of natural heritage of Savoie			11 regions concerned: Aquitaine, Auvergne, Bourgogne, Centre, Corse, Languedoc-Roussillon, Limousin, Midi-Pyrénées, Poitou-Charentes., PACA, Rhône-Alpes
AMPHIBIANS							
Yellow-bellied toad	1	2011-2015 (2016 because of a delay in the start-up)	Lorraine	ONF	ECOTER consultancy firm		18 regions concerned: Alsace, Aquitaine, Auvergne, Bourgogne, Champagne-Ardenne, Centre, Franche-Comté, Haute Normandie, Ile de France, Languedoc-Roussillon, Limousin, Lorraine, Midi-Pyrénées, Pays de la Loire, Picardie, Poitou-Charentes, PACA, Rhône-Alpes
Pelobates fuscus	1	2014-2018	Lorraine	ONF	BIOTOPE then National museum of natural history		3 regions concerned: Alsace, Lorraine, Centre
European green toad	1	2014-2018	Lorraine	ONF	BIOTOPE then National museum of natural history		4 regions concerned: Alsace (Bas-Rhin, Haut-Rhin), Lorraine (Moselle), Corse, Franche Comté (Doubs)

ITALY / ITALIE

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BRIEF OVERVIEW ON ITALIAN HERPETOFAUNA

Italy is the European country with the highest level of amphibians' biodiversity (43 species) and among those with higher reptiles biodiversity (52-53 species). Many herps species are endemic to Italy (about 40% and 10% of amphibians and reptiles respectively). Finally, Italy is the only European country with an endemic Vertebrate genus (*Salamandrina*).

ITALIAN ACTIONS FOR CONSERVATION AND MONITORING OF AMPHIBIANS AND REPTILES

In the last 10 years, several researches have been carried out about the distribution, biology and taxonomy of Italian amphibians and reptiles and considerable efforts have been spent to collect, analyse and publish these data. A careful evaluation of these information is of fundamental importance to establish national conservation priorities (e.g. Red list) and to develop correct conservation programs.

In particular Italy produced the following documents:

- 2004: "The conservation status of threatened Amphibian and Reptile species of Italian fauna" monographic supplement of the Italian Journal of Zoology. Even if slightly pre-dated represents a good synthesis of our knowledge about the most endangered Italian species of amphibians and reptiles.
- 2006: Atlas of Italian Amphibians and Reptiles (Sindaco et al., 2006) based on over 45000 records taxon/locality and on a 10×10 km grid gives the most updated distribution figure and allows to overcome several inaccuracies in the herpetological literature of the past.
- 2007. Publication of a book containing detailed information on taxonomy, reproductive biology, morphology, distribution and conservation of Italian amphibians (Lanza et al., 2007). This book is

part of the Fauna d'Italia Series (started in 1956) that will probably represents a synthesis and a references text for the next decades.

- 2007. Report of the Conservation Commission of *Societas Herpetologica Italica* on “Chitridiomicosi & monitoraggio salute anfibi” (Chytridiomycosis & Amphibians monitoring). (Fiacchini et al., 2007) <http://www-3.unipv.it/webshi/images/files/All.%20II%20-%20CHITRIDOMICOSI.pdf>
- 2011. Publication of a book containing detailed information on taxonomy, reproductive biology, morphology, distribution and conservation of Italian reptiles (Corti et al., 2011) again in the Fauna d'Italia Series.
- 2011: status assessment of the amphibian breeding sites at national level (*Societas Herpetologica Italica*).
- 2013. National IUCN Red List assessment of amphibians and reptiles (Rondinini et al., 2013).
- 2014: National report on distribution, conservation and trend of Italian amphibians and reptiles (Di Cerbo et al., 2014) .
- 2014: Drafting of a standardised methods to monitoring Italian herps at national level (*Societas Herpetologica Italica*).
- 2014: Ministerial project for actions to biodiversity conservation: “Monitoraggio delle specie di ambiente umido acquatico” (*monitoring of species in aquatic environments*) where sampling collection for *Batrachochytrium dendrobatidis* screening is included.

ITALIAN LIFE PROJECTS (2008-2013) INCLUDING HERPS

Many Life projects in Italy targeted herps. Those that have amphibians and/or reptiles as target objectives were:

Amphibians

Bombina variegata:

- LIFE08 NAT/IT/000371: RESILFOR - Restoration of beech and silver fir forests in the Toscan Marches Appennines

Species: *Salamandrina terdigitata*, *Bombina variegata*

- LIFE08 NAT/IT/000372. ARUPA - URGENT PROTECTION ACTIONS FOR AMPHIBIANS AND REPTILES IN THE MATERA GRAVINA.

Species: *Elaphe situla*, *Elaphe quatuorlineata*, *Triturus carnifex*, *Triturus vulgaris*, *Bombina pachypus*, *Hyla arborea*, *Testudo hermanni*

- LIFE09 NAT/IT/000198: LIFE+ FAGGETE DEL TABURNO –Conservation of *Taxus* and *Ilex* beechwood in the pSIC “Taburno Massif”.

Species: *Bombina pachypus*, *Hyla meridionalis*; *Triturus italicus*, *Triturus carnifex*.

Bufo viridis

- LIFE09 NAT/IT/000608: Re.S.C.We. - Restoration of Sentina coastal wetlands.

Species: *Emys orbicularis*, *Bufo viridis*

Discoglossus sardus

- LIFE08 NAT/IT/000353: Montecristo 2010 - Montecristo 2010: eradication of invasive plant and animal aliens and conservation of species/habitats in the Tuscan Archipelago, Italy.

Species: *Discoglossus sardus*, *Euleptes (Phyllodactylus) europaea*

Hyla arborea/intermedia

- LIFE08 NAT/IT/000326: Fauna di Montenero - URGENT PILOT ACTIONS FOR AMPHIBIANS, REPTILES AND CHIROPTERA OF MONTENERO.

Species: *Triturus carnifex*, *Triturus vulgaris*, *Hyla arborea/intermedia*, *Testudo hermanni*.

- LIFE08 NAT/IT/000372: ARUPA - URGENT PROTECTION ACTIONS FOR AMPHIBIANS AND REPTILES IN THE MATERA GRAVINA.

Species: *Elaphe situla*, *Elaphe quatuorlineata*, *Triturus carnifex*, *Triturus vulgaris*, *Bombina pachypus*, *Hyla arborea*, *Testudo hermanni*

Hyla meridionalis

- LIFE09 NAT/IT/000198: LIFE+ FAGGETE DEL TABURNO – Conservation of *Taxus* and *Ilex* beechwood in the pSIC “Taburno Massif”.

Species: *Bombina pachypus*, *Hyla meridionalis*; *Triturus italicus*, *Triturus carnifex*.

Pelobates fuscus insubricus

- LIFE09 NAT/IT/000110: Natura 2000 in the Po Delta - Conservation of habitats and species in the Natura 2000 sites in the Po Delta.

Species: *Pelobates fuscus insubricus*, *Emys orbicularis*

Rana latastei

- LIFE09 NAT/IT/000213: SORBA - RESTORATION OF BACCHIGLIONE SPRINGS AND HABITAT OF SPA IT3220013 AND SCI IT3220040.

Species: *Rana latastei*, *Emys orbicularis*

- LIFE10 NAT/IT/000224: C.I.SPI.VE.HAB. - Conservation and Improvement of Spina Verde SCI Habitats.

Species: *Rana latastei*

Salamandrina terdigitata

- LIFE08 NAT/IT/000371: RESILFOR - Restoration of beech and silver fir forests in the Toscan Marches Appennines

Species: *Salamandrina terdigitata*, *Bombina variegata*

Triturus carnifex

- LIFE08 NAT/IT/000326: Fauna di Montenero - URGENT PILOT ACTIONS FOR AMPHIBIANS, REPTILES AND CHIROPTERA OF MONTENERO.

Species: *Triturus carnifex*, *Triturus vulgaris*, *Hyla intermedia/arborea*, *Testudo hermanni*.

- LIFE08 NAT/IT/000372: ARUPA - URGENT PROTECTION ACTIONS FOR AMPHIBIANS AND REPTILES IN THE MATERA GRAVINA.

Species: *Elaphe situla*, *Elaphe quatuorlineata*, *Triturus carnifex*, *Triturus vulgaris*, *Bombina pachypus*, *Hyla arborea*, *Testudo hermanni*

- LIFE09 NAT/IT/000198: LIFE+ FAGGETE DEL TABURNO –Conservation of *Taxus* and *Ilex* beechwood in the pSIC “Taburno Massif”.

Species: *Bombina pachypus*, *Hyla meridionalis*; *Triturus italicus*, *Triturus carnifex*.

- LIFE11 NAT/IT/000094: SOS Tuscan Wetlands - Control of invasive alien species to restore threatened habitats in inland wetlands of northern Tuscany

Species: *Triturus carnifex*

- LIFE11 NAT/IT/000234: LIFE PRATERIE - Azioni urgenti per la conservazione delle praterie e dei pascoli nel territorio del Gran Sasso e dei Monti della Laga.

Species: *Triturus carnifex, Vipera ursinii*

Triturus italicus

- LIFE09 NAT/IT/000198: LIFE+ FAGGETE DEL TABURNO –Conservation of *Taxus* and *Ilex* beechwood in the pSIC “Taburno Massif”.

Species: *Bombina pachypus, Hyla meridionalis, Triturus italicus, Triturus carnifex*.

Reptiles

Caretta caretta

- LIFE12 NAT/IT/001185: LIFE *Caretta* Calabria - LAND-AND-SEA ACTIONS FOR CONSERVATION OF *Caretta caretta* IN ITS MOST IMPORTANT ITALIAN NESTING GROUND (IONIAN CALABRIA).

Species: *Caretta caretta*

Elaphe quatuorlineata

- LIFE08 NAT/IT/000372: ARUPA - URGENT PROTECTION ACTIONS FOR AMPHIBIANS AND REPTILES IN THE MATERA GRAVINA.

Species: *Elaphe situla, Elaphe quatuorlineata, Triturus carnifex, Triturus vulgaris, Bombina pachypus, Hyla arborea, Testudo hermanni*

Elaphe situla

- LIFE08 NAT/IT/000372: ARUPA - URGENT PROTECTION ACTIONS FOR AMPHIBIANS AND REPTILES IN THE MATERA GRAVINA.

Species: *Elaphe situla, Elaphe quatuorlineata, Triturus carnifex, Triturus vulgaris, Bombina pachypus, Hyla arborea, Testudo hermanni*

Emys orbicularis

- LIFE08 NAT/IT/000339: ORISTANESE - Oristanese land of waters: a network for the shared management of the SCIs/SPAs of the central-western coastal areas of Sardinia.

Species: *Emys orbicularis*

- LIFE09 NAT/IT/000608: Re.S.C.We. - Restoration of Sentina coastal wetlands.

Species: *Emys orbicularis, Bufo viridis*,

- LIFE09 NAT/IT/000213: SORBA - Restoration of Bacchiglione Springs and habitat of SPA IT3220013 and SCI IT3220040.

Species: *Rana latastei, Emys orbicularis*

- LIFE09 NAT/IT/000110: Natura 2000 in the Po Delta - Conservation of habitats and species in the Natura 2000 sites in the Po Delta.

Species: *Pelobates fuscus insubricus, Emys orbicularis*

- LIFE10 NAT/IT/000262: MAESTRALE - Actions for the recovery and the conservation of dune and back dune habitats in the Molise Region.

Species: *Emys orbicularis*

- LIFE12 NAT/IT/000395: LIFEEMYS - Ligurian Invasive Fauna Eradication pro indigenous *Emys orbicularis* restocking.

Species: *Emys orbicularis*

Phyllodactylus europaeus

- LIFE08 NAT/IT/000353: Montecristo 2010 - Montecristo 2010: eradication of invasive plant and animal aliens and conservation of species/habitats in the Tuscan Archipelago, Italy.

Species: *Discoglossus sardus*, *Euleptes(Phyllodactylus) europaea*

- LIFE12 NAT/IT/000416: LIFE *Puffinus* Tavolara - Protection of the largest population of *Puffinus yelkouan* on Earth and containment and eradication of invasive alien species.

Species: *Phyllodactylus europaeus*

Testudo hermanni

- LIFE08 NAT/IT/000372: ARUPA - URGENT PROTECTION ACTIONS FOR AMPHIBIANS AND REPTILES IN THE MATERA GRAVINA.

Species: *Elaphe situla*, *Elaphe quatuorlineata*, *Triturus carnifex*, *Triturus vulgaris*, *Bombina pachypus*, *Hyla arborea*, *Testudo hermanni*

- LIFE10 NAT/IT/000262: MAESTRALE - Actions for the recovery and the conservation of dune and back dune habitats in the Molise Region.

Species: *Emys orbicularis*, *Testudo hermanni*

Vipera ursinii

- LIFE11 NAT/IT/000234: LIFE PRATERIE - Azioni urgenti per la conservazione delle praterie e dei pascoli nel territorio del Gran Sasso e dei Monti della Laga.

Species: *Triturus carnifex*, *Vipera ursinii*

Batrachochytrium in Italy

Batrachochytrium dendrobatidis

Batrachochytrium dendrobatidis (Bd) is considered a main driver of the worldwide declines and extinctions of amphibian populations. In Italy Bd has been detected in five species of autochthonous anurans: (*Bombina pachypus*, *Discoglossus sardus*, *Pelophylax lessonae*, *Pelophylax kl. esculentus*, *Rana latastei*), one allochthonous frog (*Lithobates catesbeianus*) and one species of endemic newt (*Euproctis platycephalus*). (see Tessa et al., 2013 for a comprehensive review). Bd is currently widespread along the entire peninsula, at least since 1970s (Canestrelli et al., 2013).

Among the approaches to reduce or mitigate the infection of Bd on wild populations, the existing treatments for infection all suffer from various shortcomings, first of all they are appropriate for control of disease in smaller populations and communities but it is unlikely they can be rolled out at a larger spatial scale (Garner et al., 2012).

All captive conservation programmes should involve Bd screening.

In the wild, recent finding suggests that by controlling factors that elevate the probability of proliferation (e.g., rate of intrusion of vectors, the reproductive rate of Bd, the density of highly susceptible hosts) it may be possible to reduce infection to a level where host populations are sustained (see Tessa et al., 2013)

Batrachochytrium salamandrivorans

Batrachochytrium salamandrivorans (Bs) is a fungus originally found in East Asia has made its way to Europe where it now damages salamander populations. Bs was recently isolated from an infected *Salamandra salamandra* in the Netherlands (Spitzen-van der Sluijs et al., 2013)

NB: no data is available on the occurrence of Bs in Italy and a screening on newt and salamander populations urgently need.

MAIN RESULTS AND OVERVIEW ON ITALIAN HERPS

Following above mentioned reports, the Italian herpetofauna status may be resumed as:

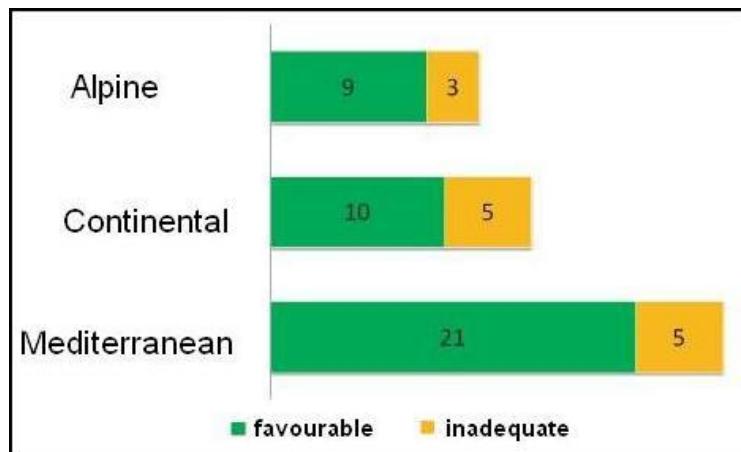
- About 45 amphibians species
- About 56 reptiles species (plus a marine turtle)
- Since 1979 about 11% of the sites were destroyed or no more suitable for the reproduction of amphibians that bred in the same site in the past. The percentage of destroyed or altered sites was 8%, both in the Mediterranean and Alpine biogeographical regions, and 15% in the Continental one
- 10 specie of amphibians and 7 of reptiles were included as target species in Italian Life project
- At least six autochthonous and one allochthonous amphibian species affected by chytridiomycosis attributable to *Batrachochytrium dendrobatidis*
- Data on the occurrence of chytridiomycosis attributable to *Batrachochytrium salamandrivorans* are lacking and a screening on wild populations need.

IUCN Red LIST assessment of endangered herps taxa at national level

AMPHIBIANS		REPTILES	
EN	<i>Euproctus platycephalus</i>	CR	<i>Podarcis raffoneae</i>
EN	<i>Bombina pachypus</i>	EN	<i>Caretta caretta</i>
EN	<i>Pelobates fuscus</i>	EN	<i>Emys orbicularis + E. trinacris</i>
EN	<i>Pelodytes punctatus</i>	EN	<i>Testudo hermanni</i>
VU	<i>Porteus anguinus</i>	EN	<i>Timon lepidus</i>
VU	<i>Salamandra lanzai</i>	VU	<i>Macroprotodon cucullatus</i>
VU	<i>Hydromantes flavus</i>	VU	<i>Malpolon insignitus</i>
VU	<i>Hydromantes genei</i>	VU	<i>Psammodrus algirus</i>
VU	<i>Hydromantes sarrabusensis</i>	VU	<i>Vipera ursinii</i>
VU	<i>Hydromantes supramontis</i>		
VU	<i>Bufo boulangeri</i>		
VU	<i>Bufo bufo</i>		
VU	<i>Discoglossus sardus</i>		
VU	<i>Rana latestei</i>		



Overall state of conservation of amphibians in Italy in each biogeographic region (modified from Di Cerbo et al., 2014)



Overall state of conservation of reptiles in Italy in each biogeographic region (modified from Di Cerbo et al., 2014)

IMPLEMENTATION OF RECOMMENDATIONS

Implementation of recommendation No. 119 (2006)

Triturus carnifex

This newt belongs to the so called “*Triturus cristatus* group”. Several studies have been carried out since 2006 and few of them have showed peculiar features of some Italian populations. Feeding ecology of a population in a flooded karstic sinkhole showed that *T. carnifex* is a specialist predator in this extreme environment (Romano et al., 2012). Furthermore, in some southern areas of its Italian range, this newt is strictly associated with artificial water bodies (i.e. concrete tanks and old stony wells, Romano et al., 2010). All those new information have obvious consequences for planning adequate conservation strategies. Although the species is widely distributed in the last 10 years about 25% of its breeding sites were lost and many of the remainder are occupied by exotic species.

Conservation and legislation: Listed in Appendix II, IV of the Habitats Directive (92/43 / EEC) and in Appendix II of the Bern Convention. Protected by several regional laws. Present in many protected areas (Temple & Cox 2009). Nevertheless, some of the alien species that threaten it (eg. *Procambarus clarkii*) are spreading rapidly even within protected areas. Negative population trends has been recorded at

local level. For these reasons, the species is evaluated Nearly Threatened (NT) Vulnerable in the National Red List assessment (Rondinini et al., 2013). *Triturus carnifex* is among the amphibian species more included in Italian Life projects (at least in 5 project in 2008-2013).

Rana latastei

Several studies have been carried out since 2006 (e.g. Bernini et al., 2004; Pellitteri Rosa et al., 2008; Sacchi et al., 2014; Ficetola & De Bernardi, 2009; Ficetola et al., 2010) and the distribution of the species is now better understood (cf. Sindaco et al. 2006). Some of the “key localities” for *Rana latastei* often reported in literature since the pioneering book by Keith Corbett (1989) like Oasi Le Bine and Bosco Fontana are now considered less crucial for the conservation of the species as many new population have been discovered across the Po Plain.

The species is still endangered due to the fragmentation of its populations (the Po plain is an highly developed area) loss of wet areas and fish introductions.

Conservation and legislation: Listed in Appendix II of the Bern Convention and in Appendix II, IV of the Habitats Directive (92/43 / EEC). In the past ten years Italy several Life project and local/regional conservation programs tried to develop an ecological network to limit fragmentation and habitat loss. In some protected areas, where historical data of presence (e.g. Parco Agricolo Sud Milano) were available, the species have been reintroduced with excellent results. *Rana latastei* is considered as Vulnerable in the National Red List assessment (Rondinini et al., 2013).

Euproctus platycephalus

The Sardinian newt can be locally abundant, but the species is represented by fragmented populations, often located in the most inaccessible parts of the streams. The number of populations seems stable (Sotgiu et al., 2010). There are no data on changes in population abundance. The main threats are predation by trout introduced to promote sport fishing; pollution of water bodies, prolonged dry periods due to water uptake and Tourism (Gorroppu), and infections from the *Batrachochytrium* recording mostly locally (e.g. Bovero et al., 2008).

Conservation and legislation: Listed in Appendix II of the Bern Convention and in Appendix IV of the Habitats Directive. Protected by the regional law 23/1998 art. 5 c. 3. The Gorroppu area was designated Site of Community Importance. Other populations occur in existing protected areas or designated (Regional Park Sette Fratelli National Park Gennargentu-Gulf of Orosei and the Regional Park Monte Limbara). Conservation measures should include control and eradication of trout (Temple & Cox 2009). A project started in 2010 (partners: Bioparco of Rome, University of Roma 3; Sardinian “Ente Foreste”) includes conservation action *in situ* and captive breeding of 24 adults from four populations to obtain a genetic bank. The Sardinian newt is assessed as Endangered (EN) by the IUCN because the restricted area actually occupied, its highly fragmented distribution and because it is affected by chitrid fungus

Lacerta agilis

This species has a marginal distribution in Italy with only two high altitude widely separated populations, one in the extreme North East (in the Tarvisio area, the only Italian valley in the Danube drainage) and the other on the western Alps (Piedmont). Populations are small and isolated but apparently in good conditions. Recent studies allowed to ascertain distribution, status, age and growth of *Lacerta agilis* in Italy (Di Già & Sindaco, 2004; Guarino et al., 2010; Lapini & Dall’Asta, 2004; Sindaco et al., 2006).

Conservation and legislation: Listed in Appendix II of the Bern Convention and in Appendix IV of the Habitats Directive. The National IUCN assessment of the conservation status is Not Applicable (NA) because the distribution in Italy is marginal compared to the whole species range

Elaphe longissima

The taxonomy Italian population of Aesculapian snake have recently revised and a new species *Zamenis lineatus* (Camerano, 1891) endemic of Southern (and partially Central) Italy has been recently recognised.

The focus of the researches is now on distribution of both *Z. longissimus* and *Z. lineatus* as little is known about the contact zone (Rosello, Abruzzi, is in the *Z. longissimus* range while Benevento, in northern Campania region, in *Z. lineatus* one; and apparently also southern Latium; Corsetti & Romano, 2008; Esposito & Romano, 2011). Studies on biology of *Z. lineatus* are also urgently needed.

Road mortality, loss and fragmentation of suitable areas are considered the main treats for both species.

Conservation and legislation: Listed in Annex II of the Bern Convention and in Appendix IV of the Habitats Directive (92/43 / EEC). This snake occurs in many protected areas and it is protected by various regional laws. *Zamenis longissimus* is considered as Least Concern in the National Red List assessment (Rondinini et al., 2013).

Vipera ursinii

The conservation status of the meadow viper has been recently summarized in the Reptilia volume of the Fauna d'Italia (Corti et al., 2011). According to the authors of the *V.u.* species account (Ernesto Filippi, Massimo Capula, Luca Luiselli and Lorenzo Rugiero) *Vipera ursinii* is the most endangered Italian snake. The main threats to the survival of the species are the excessive of grazing by livestock at high altitude; excessive density of some wild ungulates (especially *Sus scrofa*); intentional killing by man and road mortality; habitat alterations. Conservation measures are urgently needed. The situation is particularly critical on the Monti Reatini (Terminillo, Lazio), because of the limited extension of the local populations and for several disturbance factors mentioned above and alteration of habitat (construction of ski lifts). In Italy are know about 20 populations, some of them (such as that of Campo Imperatore on the Gran Sasso) with high population density while others (Terminillo) characterised by extremely low densities.

Conservation and legislation:

Listed in Appendix II, IV of the Habitats Directive (92/43 / EEC), listed in Appendix II of CITES and protected by regional laws and laws of protected areas. This viper also occurs in National Parks.

A Life project had as focal species *V. ursinii* (LIFE11 NAT/IT/000234: LIFE PRATERIE). *Vipera ursinii* is considered as Vulnerable in the National Red List assessment (Rondinini et al., 2013)

It must be stressed that under the Italian legislation any action requiring the capture, removal, or any kind of disturbance of herp species of community interest requires an authorisation issued by the Ministry of Environment based on a technical evaluation of ISPRA. Similarly, any reintroduction of herps of community interest requires an authorisation by the competent regional authorisation, also based on a technical opinion of ISPRA.

ISPRA and the *Societas Herpetologica Italica* signed a memorandum of cooperation, under which SHI supports ISPRA in the carrying on of the technical evaluations required by the national legislation. SHI also collaborates with ISPRA in the development of a national monitoring scheme for amphibians and reptiles of community interest.

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LATVIA / LETTONIE

NATIONAL REPORT ON AMPHIBIANS AND REPTILES CONSERVATION IN LATVIA 2006 – 2015

In comparison with previous reporting period, situation with amphibian and reptile protection has improved. Different institutions pay more attention to amphibian protection problems. Several national species protection plans and management plans for amphibian sites are developed. Improvement of amphibian habitats has been done in several places. No changes in legislation regarding amphibians and reptiles have been made. Legislation acts in force are sufficient for Latvian amphibian and reptile population protection. Conservation status of Latvian amphibians and reptiles see in Table 1.

There are thirteen amphibian and seven reptile species in Latvia. All the species are mentioned in the Appendices II or III of Bern convention (Table 1). Rare species are protected by the Regulations of the Cabinet of Ministers No. 396 adopted on November 14, 2000 “List of Specially Protected Species and Species with Exploitation Limits” (as amended by the 24.07.2004 Cabinet of Ministers Regulation No 627). For three species (*Bombina bombina*, *Bufo calamita* and *Triturus cristatus* (added with regulation amendments 31.05.2005.), if necessary, it is possible to establish microreserves. It is provided by the Cabinet of Ministers Regulations (Nr. 45/ 30.01.2001) “On establishing, protection and management of microreserves”.

9 amphibian and reptile species are included in the Red Data Book of Latvia. The Red Data Book of Latvia is a scientific document and has no legal force. The Red Data Book is a scientific argument for developing legal acts and there are no contradictions between the Red Data Book and legal acts.

Table 1 - Status of Amphibian and Reptile Species of Latvia

Species	Bern Convention	EU Habitats Directive ¹	Situation in Latvia	Cabinet of Ministers Regulations ²	Red Data Book of Latvia, Category
Amphibia					
<i>Triturus vulgaris</i> (L.)	III		Common		
<i>Triturus cristatus</i> (Laur.)	II	HD II; IV	Rare	Specially protected species	2
<i>Bufo calamita</i> Laur.	II	HD IV	Rare	Specially protected species	2
<i>Bufo bufo</i> (L.)	III		Very common		
<i>Bufo viridis</i> Laur.	II	HD IV	Comparatively rare	Specially protected species	3
<i>Bombina bombina</i> (L.)	II	HD II; IV	Very rare	Specially protected species	1
<i>Hyla arborea</i> (L.)	II	HD IV	Rare, reintroduced	Specially protected species	2
<i>Pelobates fuscus</i> (Laur.)	II	HD IV	Rare	Specially protected species	4
<i>Rana ridibunda</i> Pall. (<i>Pelophylax ridibundus</i>)	III	HD V	Rare, introduced?		
<i>Rana esculenta</i> L. (<i>Pelophylax esculentus</i>)	III	HD V	Common		
<i>Rana lessonae</i> Camerano (<i>Pelophylax lessonae</i>)	III	HD IV	Common		
<i>Rana arvalis</i> Nilsson	II	HD IV	Comparatively		

Species	Bern Convention	EU Habitats Directive ¹	Situation in Latvia	Cabinet of Ministers Regulations ²	Red Data Book of Latvia, Category
			rare		
<i>Rana temporaria</i> L.	III	HD V	Very common		
Reptilia					
<i>Emys orbicularis</i> (L.)	II	HD II; IV	Very rare, probably extinct	Specially protected species	0
<i>Lacerta agilis</i> L. (<i>Zootoca agilis</i>)	II	HD IV	Comparatively rare	Specially protected species	3
<i>Lacerta vivipara</i> Jacq. (<i>Zootoca vivipara</i>)	III		Common		
<i>Anguis fragilis</i> L.	III		Common		
<i>Natrix natrix</i> (L.)	III		Very common		
<i>Coronella austriaca</i> Laur.	II	HD IV	Very rare	Specially protected species	1
<i>Vipera berus</i> (L.)	III		Common		

Categories:

0 most probably extinct species;

1 endangered;

2 vulnerable;

3 rare;

4 possibly endangered species, insufficiently studied.

¹Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

²Regulations of the Cabinet of Ministers No. 396 adopted on November 14, 2000 "List of Specially Protected Species and Species with Exploitation Limits"

Latest information about amphibian and reptile species and their populations is collected for animals which are protected by EU Habitats Directive. Information is published in "Reporting under Habitats Directive, Art. 17: Conservation Status of Species & habitats, assessment 2007-2012" (<http://cdr.eionet.europa.eu/lv/eu/art17/envuc1kdw>). There information can be found about 14 out of 20 species. Conservation status for all species is estimated based on expert opinion with no or minimal sampling.

Table 2 - Species conservation status according to Reporting under Habitats Directive, Art. 17

Species	Overall assessment of Conservation Status	Overall trend in Conservation Status
Amphibia		
<i>Triturus cristatus</i>	Inadequate	declining
<i>Bufo calamita</i>	Inadequate	declining
<i>Bufo viridis</i>	Inadequate	stable
<i>Bombina bombina</i>	Inadequate	unknown
<i>Hyla arborea</i>	Favourable	Favourable
<i>Pelobates fuscus</i>	Inadequate	unknown
<i>Rana ridibunda</i>	Inadequate	unknown
<i>Rana esculenta</i>	Favourable	Favourable
<i>Rana lessonae</i>	Favourable	Favourable
<i>Rana arvalis</i>	Favourable	Favourable
<i>Rana temporaria</i>	Favourable	Favourable
Reptilia		
<i>Emys orbicularis</i>	Bad	declining
<i>Lacerta agilis</i>	Inadequate	stable
<i>Coronella austriaca</i>	Bad	declining

6 species, which are not included in that report, *Triturus vulgaris*, *Bufo bufo*, *Lacerta vivipara*, *Anguis fragilis*, *Natrix natrix*, *Vipera berus*, are common and occur in all territory of Latvia.

Since 2010 a procedure is developed how a person can become a certified habitat or species protection expert, including an expert on amphibian and reptile protection. This procedure is determined by Regulations of the Cabinet of Ministers No. 257 adopted on 16.03.2010 "Procedures for Certification of Experts in the Field of Conservation of Species and Biotopes and Supervision of the Activities Thereof". Simultaneously many amendments in other legislation acts were developed and now environment impact assessment, assessment of plans and projects significantly affecting Natura 2000 sites, management of protected species habitats, and development of management plans for specially protected territories can be done only by certified experts. Species introduction, reintroduction and catching of animals can be done only according to assessment and recommendations of certified expert.

There were no reintroduction and introduction projects carried out during the reporting period. Permissions for amphibian and reptile catching were issued mostly for zoos. Riga zoo has a collection of all Latvian amphibian and reptile species and some Latvian species are represented in Latgale zoological garden.

There are 4 national species protection plans developed for amphibians and reptiles: for *Coronella austriaca* (2014), *Bufo calamita* (2008), *Emys orbicularis* (2008), *Bombina bombina* (2007). Species protection plan for *Triturus cristatus* and *Lacerta agilis* are not developed. And there are developed more than 10 nature management plans for specially protected territories (Natura 2000 territories) which are important for amphibian and reptile protection. All management plans are at least partially implemented. Partially management of sites and populations were carried out within LIFE project LIFE09 NAT/LV/000239 Life-HerpetoLatvia, Conservation of rare reptiles and amphibians in Latvia. This project was important to three rarest and most endangered species *Emys orbicularis*, *Coronella austriaca*, *Bombina bombina*. Project included studies of population, management plans for *Emys orbicularis*, *Coronella austriaca*, *Bombina bombina*, habitat management, rising of public awareness and creation of Rare Reptile and Amphibian Centre.

Public attitude towards reptile and amphibian protection is improving, thanks to Riga Zoo and Latgale zoological garden who frequently publish information about animals and ask people to provide information about occurrence of rare amphibians and reptiles. Due to public response, a lot of information is collected about local species and introduced species. It appeared that animals released and escaped from captivity become a problem to local species. A fish *Percottus glehni* is spreading, and it has significantly negative impact on amphibian population. And there are a lot of findings of turtle *Trachemys scripta elegans* which occupies an ecological niche of *Emys orbicularis*. In year 2010 it was decided to create Turtle shelter in Riga zoo, where people can bring their own not needed pets or turtles found in wild. Latgale zoological garden is accepting *Trachemys scripta elegans*, too.

LIECHTENSTEIN / LIECHTENSTEIN



OFFICE OF ENVIRONMENT
PRINCIPALITY OF LIECHTENSTEIN

REPORT ON RELEVANT ACTIONS ON AMPHIBIANS AND REPTILES, IN PARTICULAR ON THE IMPLEMENTATION OF THE ACTION PLANS (RECOMMENDATION NO. 119) AND ON THE CONTROL OF THE SMALL INDIAN MONGOOSE (*Herpestes auropunctatus*) ADOPTED BY THE STANDING COMMITTEE

Of the five endangered amphibian and reptile species listed in Recommendation No. 119, only the Crested Newt *Triturus cristatus* and the Sand Lizard *Lacerta agilis* do occur in Liechtenstein. Currently no specific National Management Plan exists for either species. However, all amphibians and reptiles in Liechtenstein are listed as strictly protected fauna (Verordnung über besonders geschützte Pflanzen- und Tierarten, 415.014). It is therefore prohibited to catch, harm or kill individuals of a strictly protected species or to collect, harm or destroy their eggs, larvae or pupae (in any developmental stage). It is furthermore forbidden to disturb the habitats of any strictly protected species.

The “Inventar der Naturvorrangflächen im Fürstentum Liechtenstein” lists all protected areas and areas worthy of protection across Liechtenstein. While protected areas are legally protected for their natural assets, areas worthy of protection are not. However, the inclusion in the inventory is based on a scientific evaluation of their significant natural, aesthetic, geological or historical properties forming the foundation for a listing as legally protected area. Protected areas and areas worthy of protection currently listed in the inventory encompass the majority of vital habitats for amphibians and reptiles across Liechtenstein including for example wetlands, bogs, dry stone walls and rocky meadows.

Interventions that affect the ecological functions of a landscape may, according to the Nature Conservation Act (Naturschutzgesetz, 451.0) only be authorised if they can be avoided or compensated. Such interventions are often associated with construction sites and respective compensating measures are frequently required. These measures are legally binding and are recorded on the formal letter of approval. Examples of regularly requested compensation measures in regards to amphibian or reptile protection include the relocation of a population, building of a dry stone wall or the revitalisation of a habitat.

The Office of Environment is the authority on all matters of threatened species management and has therefore a performance agreement with a research group, the “Botanisch-Zoologische Gesellschaft Liechtenstein-Sarganserland-Werdenberg e.V.” (BZG). The BZG supports the Office of Environment in public relations and advises on all matters regarding amphibian and reptile conservation. The BZG is furthermore the main contact for the public and is responsible for regularly monitoring all amphibian and reptile species and maintaining a database of the collected data.

No actions in regards to the control of the small Indian mongoose (*Herpestes auropunctatus*) have been taken, because the species has not been established across Liechtenstein.

Oliver Müller
Office of Environment, Section Nature and Landscape

MALTA / MALTE

MALTA'S NATIONAL REPORT ON THE IMPLEMENTATION OF RECOMMENDATION NO. 119 (2006) ON THE CONSERVATION OF CERTAIN ENDANGERED SPECIES OF AMPHIBIANS AND REPTILES IN EUROPE

Herpetofauna of the Maltese Islands

None of the five species listed in this Recommendation occur naturally in Malta, although all are covered as species of Community interest in need of strict protection by the “Flora, Fauna and Natural Habitats Regulations, 2006” (Legal Notice 311 of 2006, as amended), which transposes the requirements of the Bern Convention and also extends protection to other endangered European species.

Excluding marine species, the native herpetofauna of the Maltese Islands is represented by the following:

- a subspecies of painted frog – *Discoglossus pictus pictus* – a Siculo-Maltese sub-endemic;
- the native ocellated skink – *Chalcides ocellatus tiligugu*;
- two native species of gecko – *Hemidactylus turcicus* and *Tarentola mauritanica*;
- one species of lacertid lizard – *Podarcis filfolensis* – a Pelago-Maltese endemic, with four locally named subspecific taxa and another yet unnamed; and
- four species of snakes – *Hemorrhois algirus*, *Zamenis situla*, *Telescopus fallax* and *Hierophis viridiflavus*.

Other species are known, including the naturalised *Chamaleo chameleon* and *Pelophylax bedriagae*; and *Testudo graeca* which, although reported in the past, was not recently observed in the wild in the Maltese Islands.

Conservation status

The conservation status of *Chalcides ocellatus tiligugu*, *Hierophis viridiflavus*, *Zamenis situla*, *Podarcis filfolensis* and *Telescopus fallax* has been assessed as favourable against criteria set for the purposes of Article 17 reporting under the EU Habitats Directive, and inadequate but stable for *Discoglossus pictus pictus* (Table 1). The reporting obligations for these species have been set on the basis of the danger of disappearance in their natural range; their small natural range; or because they are outstanding examples of typical characteristics of a number of defined biogeographical regions in the European Union.

Class	Species ⁺	Conservation status for reporting period 2013
Amphibia	<i>Discoglossus pictus pictus</i> Painted Frog	Inadequate (U1), Stable (=)
Reptilia	<i>Chalcides ocellatus tiligugu</i> Ocellated Skink	Favourable (FV)
	<i>Hierophis viridiflavus</i> Western Whip Snake	Favourable (FV)
	<i>Zamenis situla</i> Leopard Snake	Favourable (FV)
	<i>Podarcis filfolensis</i> Maltese Wall Lizard*	Favourable (FV)
	<i>Telescopus fallax</i> Cat Snake	Favourable (FV)

* *Podarcis filfolensis* is a Pelago-Maltese endemic with four locally named races

⁺ Article 17 obligations do not include the local herpetofauna species *Chamaeleo chamaeleon*, *Hemidactylus turcicus*, *Tarentola mauritanica* and *Hemorrhois algirus*

Table 1 The Conservation Status for the local herpetofauna as indicated in Article 17 reports (MEPA, 2013)

Conservation measures

The draft Dossier on the Capture and Killing of Terrestrial Wild Fauna addresses species of fauna that are, or are likely to be, threatened by deliberate and/or incidental capture and killing, as well as animal species whose exploitation should be managed. The Dossier ultimately responds to mandates of biodiversity related multilateral environmental agreements, including the Bern Convention, as well as related EU policy. It aims at assisting Malta in building a strict protection regime, by providing guidance and recommendations on species protection and management; habitat protection and management; legislative and enforcement provisions; capacity building, cooperation and coordination between managers and relevant stakeholders; and communication, education and public awareness initiative. Strategic recovery plans for each species or group of species is also addressed in the Dossier, including the species mentioned above. Hence the Dossier, which integrates a proposed strategy establishing conservation measures for herpetofauna of the Maltese Islands, will be a key policy tool for strengthening the implementation of Recommendation No. 119 (2006) on the Conservation of Certain Endangered Species of Amphibians and Reptiles in Europe at a national level.

The Dossier has been revised following public consultation and is currently being updated to incorporate information, objectives and measures established in the management plans for Natura 2000 which have been recently compiled.

Permitting procedures pertaining to the activities within protected areas or activities that may affect protected species ensure due consideration is given to the protection of herpetofauna. Control efforts to deal with invasive alien species that are of a threat to these species are also ongoing with attention being currently focused on addressing rat populations (coupled with for instance measures to regulate disposal of waste in key areas).

Awareness-raising on ecological value and need for conservation of local herpetofauna has been sought through a number of initiatives. Material for awareness-raising, such as posters, has been published and widely distributed to promote the conservation of these species. Further initiatives include biodiversity tours for selected protected areas which are open to the public and average seven tours per year and participation in local television programmes. Malta also celebrated International Biodiversity Day on 22 May 2014 with the theme “Island Biodiversity”. A number of activities were held, which included a number of conferences, a biodiversity tour and a biodiversity awareness stand.³

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³ More information is available at: <https://www.cbd.int/idb/2014/celebrations/mt/>

MONACO / MONACO

Rapport de mission 2012-2013 Inventaire herpétologique de la Principauté de Monaco

Principauté de Monaco



**L'inventaire herpétologique de la Principauté de Monaco
a été réalisé en collaboration et pour le compte de la
Direction de L'Environnement de La Principauté de Monaco
par le
Conservatoire d'espaces naturels de Provence-Alpes-Côte d'Azur
29 janvier 2014**

Coordination : Florence Ménétrier, chargée de mission CEN PACA.

Rédaction : Florence Ménétrier et Sébastien Sant.

Inventaires : Florence Ménétrier et Sébastien Sant

Avec l'aide de Vincent Kulesza (Président du CEN PACA) et des bénévoles du CEN PACA ainsi que Vincent Gaglio (Direction de l'Environnement, Monaco).

Crédits photographiques : D. Touboul, F. Ménétrier, S. Sant.

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1. OBJET DE LA CONVENTION

Faisant suite à l'inventaire ornithologique réalisé en 2010 et 2011, la Direction de l'Environnement de la Principauté de Monaco a renouvelé sa confiance au Conservatoire d'espaces naturels de Provence-Alpes-Côte d'Azur (CEN PACA) en nous confiant la réalisation d'un inventaire des espèces de reptile et d'amphibien (Herpétofaune) du territoire monégasque. Cette mission d'inventaire fait l'objet d'un contrat d'étude entre la Direction de l'Environnement et le CEN PACA (convention n°2013-10).

L'objectif est de compléter les inventaires de la biodiversité terrestre déjà réalisés sur l'ensemble du territoire monégasque. Les résultats serviront de support aux mesures de conservation à prendre sur les plans législatif, réglementaire ou opérationnel. Les falaises du Rocher de Monaco, notamment, représentent une zone sauvage abritant plusieurs espèces végétales et animales remarquables.

Conformément au contrat établi entre les deux parties, les missions du CEN PACA pour la présente étude visent donc à :

- Améliorer la connaissance sur les espèces de reptiles et amphibiens présentes sur le territoire de la Principauté de Monaco ;
- Définir les enjeux de conservation pour les espèces patrimoniales du territoire monégasque.

Le présent document constitue le rapport final relatif à la réalisation de la tranche ferme du contrat. Cette tranche ferme correspond à un cycle annuel complet de prospection (mai 2012 à septembre 2013). La tranche secondaire n'a pas été réalisée, les espèces cibles dans cette tranche optionnelle (phyllodactyle d'Europe et spélerpès de Strinatii) n'ayant pas été contactées sur le territoire monégasque.

Le rapport présente la méthodologie des inventaires, la liste brute avec les niveaux de protection des espèces identifiées, une liste commentée des espèces patrimoniales et des préconisations de gestion.

Les inventaires biologiques réalisés sur une seule année étant forcément partiels, ce document constitue un premier diagnostic écologique en l'état actuel des connaissances. Il a pour vocation d'être complété et enrichi par un éventuel suivi et/ou le renseignement ponctuel des listes d'inventaires par des naturalistes.

2. DONNEES ET METHODE

2.1 Présentation générale

2.1.1 Contexte biogéographique

Situé à l'extrême sud-est de la France, le contexte biogéographique de la Principauté de Monaco est à rapprocher de celui du département français limitrophe, les Alpes-Maritimes, dont les critères biogéographiques de la zone littorale sont applicables à Monaco. En pourcentage comparé des territoires, la Principauté de Monaco représente 1,95 km² dont 0,4 gagné sur la mer, d'une altitude maximale de 161 m, contre 4 299 km² pour les Alpes-Maritimes avec une altitude maximale de 3143 m.

Le département des Alpes-Maritimes est un des plus riches départements de la France métropolitaine en terme de diversité biologique. La Principauté de Monaco présentait des milieux naturels originels probablement semblables au reste du littoral azuréen, entre Nice et Menton. Cependant, l'histoire et l'économie locale ont profondément modifié les milieux qui sont fortement anthropisés : la pression urbaine y est une des plus denses avec un bâti compact et une artificialisation des milieux naturels quasi totale.

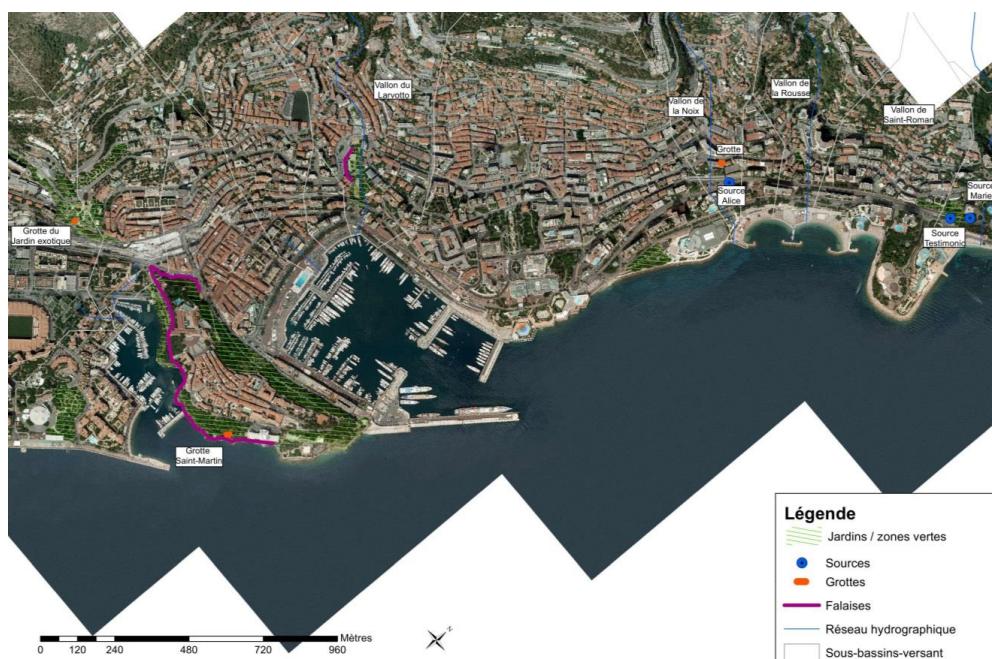
Malgré tout, la Principauté de Monaco abrite une diversité biologique remarquable qui nous est révélée au gré des inventaires biologiques déjà réalisés (flore, entomofaune, avifaune) dans le cadre de la réalisation de l'inventaire complet de la biodiversité de son territoire.

2.1.2 La zone d'étude

La zone d'étude comprend l'ensemble des milieux terrestres, naturels ou faiblement anthropisés, sur le territoire monégasque.

Le contexte monégasque, très fortement urbanisé, ne laisse qu'une faible part à ces espaces potentiellement favorables à l'accueil de l'herpétofaune. Un repérage a donc été réalisé préalablement, avec l'appui de la Direction de l'Environnement, sur base de l'étude de l'orthophotographie aérienne et des données hydrographiques du bassin versant de Monaco.

Les secteurs potentiellement favorables pré-identifiés sont représentés sur la carte suivante :



Les milieux propices à l'accueil de l'herpétofaune* sont : les jardins (hachure vert), les falaises/habitats rupestres du Rocher (trait violet), les vallons/sources (bleu) et les grottes (point orange).

Le Rocher couvre une superficie relativement grande et comprenant les différents types d'habitats (jardins, falaises, point d'eau). Globalement préservé, c'est l'un des secteurs les plus favorables à l'accueil des reptiles et amphibiens.

2.2 Audit et bibliographie

Les données bibliographiques concernant l'herpétofaune sont faibles sur la Principauté de Monaco.

La bibliographie donne :

- une liste des espèces de l'herpétofaune de la Principauté de Monaco, réalisée par le Pr. Denis ALLEMAND dans le cadre d'une demande de la Société Herpétologique de France (SHF) pour la réalisation d'un inventaire européen, à la fin des années 80.
- une étude d'impact relative à des travaux d'aménagement réalisés dans le vallon de Sainte Dévote (2011) avec des prospections ciblées sur les reptiles/amphibiens⁴. Cette campagne a été suivie d'une opération de déplacement d'une espèce à fort enjeu : l'hémidactyle verruqueux (développé plus loin).

Vu le peu de données bibliographiques, l'audit de « personnes ressources » est une source d'information non négligeable.

Une demande a été réalisée auprès des Sapeurs-Pompiers de Monaco, *via* le gouvernement monégasque. En effet, en secteur très urbain, il n'est pas rare que des données de reptiles soient enregistrées par ce corps de service, appelé pour récupérer et évacuer des reptiles. En l'absence de la tenue d'un registre, l'identification des espèces capturées par les pompiers n'est malheureusement pas connue. Par contre, le type et le nombre d'individus capturés entre 2009 à 2011 est renseigné : 4 serpents et 1 saurien (cf. le compte rendu du Corps des Sapeurs-Pompiers de Monaco en annexe 1).

Ces informations s'avèrent toutefois intéressantes, une fois corrélée aux informations de Monsieur Jean-Marie Vitti, Directeur du Jardin Animalier de Monaco, qui est habilité pour récupérer les individus capturés par les pompiers. Monsieur Vitti nous informe que les espèces capturées sont bien souvent des espèces exotiques échappées de vivarium appartenant à des particuliers ; quelques-unes sont des espèces venimeuses. Les observations communiquées par M. Vitti concernant les espèces indigènes sont reprises dans les résultats (cf. 0).

2.3 Méthode et prospections

▪ *Espèces ciblées*

La présente mission a pour objectif l'inventaire des espèces de reptiles et d'amphibiens présentes sur le territoire de la Principauté de Monaco.

Sont visées toutes les espèces indigènes susceptibles d'être présentes dans la zone géographique méditerranéenne littorale, à savoir :

- Reptiles : lézard, gecko (sous-ordre des sauriens) et serpents (sous-ordre des ophiidiens)
- Amphibiens : crapauds/grenouilles (sous-ordre des anoures) et salamandres (sous-ordre des urodèles).

Une partie du temps de prospections a été orientée sur la recherche spécifique des espèces patrimoniales dont les populations sont connues à proximité du territoire de Monaco : le spéléopète de Strinati *Speleomantis strinatii*, le phyllodactyle d'Europe *Euleptes europaea* et l'hémidactyle verruqueux *Hemidactylus turcicus*.

⁴ Groupe Artelia, 2011 - Etude d'impact sur l'environnement « Projet de création d'un 3^{ème} poste source d'énergie électrique »

- **Méthodologie globale**

Les techniques courantes d'échantillonnage sont utilisées pour la recherche des reptiles et des amphibiens.

Amphibiens : La recherche des œufs, des têtards et des larves est généralement effectuée durant la journée sur les points d'eau et les milieux favorables. Les individus adultes sont recherchés la nuit à l'aide de lampes, à proximité des points d'eau.

Sur le territoire monégasque, les zones humides sont constituées par des bassins, mares artificielles et canaux situés dans les jardins et quelques vallons.

Reptiles : Les prospections sont réalisées de jour, soit à distance avec des jumelles en balayant les milieux favorables, soit en soulevant les matériaux naturels ou artefacts susceptibles de servir d'abris (tôle, pierre, tronc d'arbre, dalle béton...). Sur le territoire monégasque, les principaux milieux favorables sont représentés par des murets de pierre, zones rocheuses naturelle et artificielle que l'on trouve principalement dans les jardins.

- **Méthodologie spécifique**

L'écologie particulière des espèces à fort enjeu : spéléopète de Strinati *Speleomantis strinatii*, le phyllodactyle d'Europe *Euleptes europaea* et l'hémidactyle verruqueux *Hemidactylus turcicus*, nécessite la mise en œuvre de prospections spécifiques.

Le spéléopète de Strinati est un amphibien endémique strictement terrestre, il est actif toute l'année principalement au printemps et en début d'automne lorsque les conditions climatiques sont les plus favorables. Il occupe des habitats rocheux variés (grottes, crevasses, murets...) mais strictement déterminés par des conditions d'hygrométrie et de température spécifiques (hygrométrie > 70% et température modérée >13°C).

Il est donc recherché de nuit, après une pluie automnale ou printanière, lorsque la température est modérée ou bien, toute l'année dans les milieux souterrains (grottes, crevasses) où les conditions environnementales sont stables.

Les deux geckos phyllodactyle d'Europe et hémidactyle verruqueux ont des écologies sensiblement similaires d'après la bibliographie. Espèces méditerranéennes, ils sont inféodés à un habitat rupestre protégé des vents froids. D'après nos récentes observations sur le terrain, l'hémidactyle verruqueux semblerait plus « thermophile » et donc localisé sur le littoral. Le phyllodactyle d'Europe semblerait plus lié à une certaine hygrométrie : il a ainsi été observé au niveau de la mer en zone insulaire mais également à des altitudes plus élevées où se concentrent les nuages (Turbie, Castillon), à l'est des Alpes-Maritimes.

Les deux espèces ont une activité strictement nocturne. Ils sont donc recherchés de nuit, à l'aide d'une lampe torche, en scrutant les milieux rupestres favorables, qu'ils soient naturels (rochers littoraux) ou artificiels (murets de pierre).

- **Dates et effort de prospection**

Les inventaires de terrain ont été réalisés par Sébastien Sant et Florence Ménétrier du CEN PACA, accompagnés de bénévoles du CEN PACA et/ou du personnel de la Direction de l'Environnement de Monaco.

Le tableau suivant reprend les dates des sessions de prospections avec les conditions d'observation et la pression de prospection (nombre d'observateurs, durée).

Tableau 1 : Effort de prospection dans le cadre de l'inventaire herpétologique de la Principauté de Monaco

Date	Lieu-dit	NO1	HDP ²	HFP ²	DTP ^{4(min)}
02/05/2012	Parc Princesse Antoinette	4	9h00	10h00	60
02/05/2012	Vallon, Source Marie	4	11h30	12h00	180
21/05/2012	Jardin Exotique	4	21h00	23h45	185
19/06/2012	Jardin du Palais Princier	4	21h00	00h15	195
09/07/2012	Jardins Saint-Martin	5	21h30	00h30	30
19/09/2012	Jardin Animalier	6	20h30	22h00	90
03/10/2012	Grotte du Trocadéro	2	14h00	15h30	90
12/08/2013	entre la frontière ouest et les pépinières du Jardin Exotique	2	21h40	21h50	10
12/08/2013	Jardin de la Via Alpina	2	21h55	22h15	20
12/08/2013	Descente de la Plage du "pont de fer"	2	22h30	22h45	15
12/08/2013	Enrochements du bord de mer derrière le Monte-Carlo Bay Hôtel	2	22h50	23h05	15
12/08/2013	Vallon Sainte Dévote	2	23h20	23h35	15
28/08/2013	Escalier de la falaise du Musée Océanographique	2	21h15	21h45	30
28/08/2013	zone entre la plage des pêcheurs et le Fort Antoine	2	22h00	22h30	30
28/08/2013	Terrasses des prisons	2	21h45	22h00	15
28/08/2013	Jardins de Fontvieille (entre le chapiteau et la Roseraie Princesse Grace (celle-ci étant en travaux / non accessible) + jardins de la zone A)	2	22h30	23h00	30
02/09/2013	Jardin Japonais	2	17h00	17h30	30
02/09/2013	Jardins Saint-Martin	2	17h30	18h30	60
02/09/2013	Derrière le Casino (Jardins des Spélugues et de la Petite Afrique)	2	16h00	17h00	60
<i>Total effort de prospection (min) =</i>					1160

Légende :

NO1 = Nombre d'observateurs

HDP2 = Heure début de prospection

HFP3= Heure fin de prospection

DTP4 = Durée totale de prospection (min)

Au total, 9 sessions de terrain ont été réalisées dans le cadre de l'inventaire de l'herpétofaune 2011-2012, totalisant 1160 minutes d'effort de prospection.

Cette notion d'effort de prospection est intéressante en vue de pouvoir comparer les résultats de différentes études, au regard des efforts mis en œuvre.

2.4 Difficultés rencontrées

Les principales difficultés rencontrées résident dans la difficulté d'accès à certains secteurs potentiellement favorables du fait de la topographie accidentée ou des autorisations d'accès restreintes (jardin du Palais Princier). Malgré tout, la Direction de l'Environnement et les différents partenaires se sont mobilisés pour nous faciliter les accès aux différents sites.

La météo peu clémence du printemps/début d'été 2012 a quelque peu retardé les prospections qui auraient dû se terminer en juin 2013. Cependant, l'attribution d'un avenant à la convention (n°389-2013-10) a permis de prolonger les inventaires de terrain jusqu'à fin août 2013.

3. PRINCIPAUX RESULTATS

3.1 Notions préliminaires concernant les reptiles/amphibiens

L'herpétofaune englobe la faune reptilienne élargie à la batrachofaune. L'herpétologie est l'étude de l'herpétofaune.

Les amphibiens comprennent deux ordres : les anoures (grenouilles, crapauds) et les urodèles (salamandre, spéléomante). Ce sont des vertébrés ectothermes, à la peau lisse sans écailles, perméable à l'eau. Le développement larvaire passe par un stade larvaire chez de nombreuses espèces. On dénombre environ 4 600 espèces d'amphibiens dans le monde et 39 espèces sur le territoire français métropolitain.

Les reptiles ont été les premiers vertébrés vraiment terrestres de la planète. En Europe, deux ordres sont représentés : les Testudines (tortues) et les Squamates qui regroupent : serpents, lézard, geckos, orvets. Les reptiles ont une peau écailleuse qui résiste au dessèchement et pondent des œufs en coquille (ils ne sont pas tributaires de l'eau). Dans le monde, 6 000 espèces de reptiles sont connues et 41 espèces de reptiles sont présentes sur le territoire français métropolitain.

Rappelons que toutes les espèces de reptile et d'amphibien sont protégées sur le territoire français. De nombreuses espèces sont menacées aujourd'hui dans le monde et en Europe : l'évolution des milieux (déprise agricole), leur fragmentation ou disparition (urbanisation, assèchement des zones humides), l'introduction d'espèces exotiques sont les principaux facteurs de régression et de vulnérabilité des populations de reptiles et amphibiens. A cela s'ajoute parfois que certaines espèces sont injustement méprisées et peuvent être victimes de la peur des hommes (serpents).

La Liste rouge des espèces menacées en France (critères de l'IUCN) dresse un bilan objectif du degré de menace pesant sur les espèces de la faune et de la flore à l'échelle du territoire national. La liste rouge des reptiles et amphibiens⁵ révèle que 20,6 % des espèces d'amphibiens et 18,9% des espèces de reptile sont menacées de disparition (statut vulnérable, en danger ou en danger critique d'extinction) aujourd'hui en France.

C'est dire l'importance de connaître l'inventaire des espèces présentes sur le territoire monégasque en vue de préserver ces espèces menacées.

3.2 Les types de milieux prospectés

Le territoire monégasque présente des secteurs très disparates pour l'accueil de l'herpétofaune. Seuls quelques jardins, espaces verts et falaises du Rocher semblent potentiellement favorables. Ces milieux sont présentés ci-dessous :

- ***Les jardins***

Les jardins et espaces verts (Jardins du Casino, Jardins Saint-Martin, Jardin Exotique....) sont des lieux urbains, aménagés pour le public et bénéficiant d'un soin tout particulier au niveau de la propreté, de l'entretien des végétaux et des espaces associés (allées cimentées, escaliers, gradins, ...).

Les jardins publics sont entretenus et surveillés par les services du Gouvernement ou ceux de la Mairie de Monaco (Jardin Exotique). Les Jardins privés du Palais Princier sont sous la conduite de François Bonne, chef jardinier du Palais depuis 1982. A notre connaissance, l'entretien de ces espaces verts est réalisé sans traitement chimique (charte éthique d'entretien de la Principauté et com.pers. F. Bonne), ce qui est gage d'un milieu favorable à l'accueil des reptiles/amphibiens.

Dans ce contexte urbanisé, les jardins de Monaco représentent donc des habitats naturels favorables à la faune, d'autant plus précieux qu'ils sont souvent agrémentés de zones humides artificielles (type

⁵ IUCN France, MNHN & SHF. 2008. La Liste rouge des espèces menacées en France, selon les catégories et critères de l'IUCN. Chapitre Reptiles et Amphibiens de France métropolitaine. Dossier de presse. Paris.

« petits bassins ») utiles et attractifs pour les amphibiens ainsi que des murets en pierre/rocaille pouvant être utilisés par les reptiles.

Dans le cadre de l'inventaire, les jardins suivants ont été prospectés (cf. **Error! Reference source not found.**) : le Jardin Exotique, les Jardins Saint-Martin, le Jardin privé du Palais, le Jardin *Via Alpina*, le Jardin Animalier, les terrasses des prisons, le Jardin Japonais, les Jardins de Fontvieille et le Parc Princesse Antoinette.



Figure 1 : Jardin Exotique et Jardin Saint-Martin. Photo©G. Beaudoin et F. Ménétrier /CEN PACA

- **Les falaises du Rocher**

Derniers milieux « naturels » de la Principauté de Monaco, les falaises du Rocher abritent une flore indigène remarquable⁶ colonisée par endroit par une végétation « exotique ». Ces faciès d'habitats rupestres, bien exposés et protégés de la fréquentation humaine (accès interdit), sont potentiellement très favorables à nombre d'espèces de l'herpétofaune méditerranéenne locale (gecko et serpents).



Figure 2 : Falaises du Rocher. Photo©F. Ménétrier/CEN PACA

⁶ K. Diadema, F. Médail & R. Salanon, 2006. Inventaire de la flore terrestre sauvage de la Principauté de Monaco. CBNMED

Les falaises sont difficilement accessibles mais quelques portions ont pu être inspectées, notamment en accédant par le Jardin du Palais et par le Musée Océanographique.

- ***Les Glacis du Rocher et le souterrain du Palais***

Les Glacis qui constituent les pentes "sauvages" du Rocher, côté nord, ne font l'objet d'aucun aménagement ni de plantation : seules des opérations d'éradication de certaines plantes particulièrement envahissantes sont pratiquées à intervalles réguliers.

Le Palais abrite une partie souterraine constituée de galeries aménagées, en lien avec l'extérieur. Ces milieux souterrains ont été inspectés car potentiellement favorables à une espèce tout particulièrement : le spéléomante de Strinati. Les Glacis et le souterrain ont pu être prospectés de nuit.



Figure 3 : Inspection dans les souterrains du Palais Princier. Photo©S. SANT

- ***Les grottes***

Deux grottes sont connues sur la Principauté de Monaco et ont été visitées dans le cadre de l'inventaire.

La Grotte de l'Observatoire est située sur une falaise abrupte de la partie orientale du Jardin Exotique de Monaco. Cette grotte est aménagée pour la visite du public entre les cotes 98 m et 40 m mais la cavité s'enfonce pratiquement jusqu'au niveau de la mer.

Le milieu serait potentiellement favorable au spéleopète de Strinatii, bien que l'humidité soit réduite aux parties les plus reculées de la grotte. Les divers aménagements de la grotte ont modifié l'aérologie et de fait les conditions d'humidité associées.

De plus, l'aménagement de la grotte pour la visite du public avec l'installation de nombreux éclairages (voir photo suivante) et la fréquentation induite (grotte accessible dans le cadre de la visite du Jardin) sont certainement des facteurs limitants au maintien d'espèces animales.

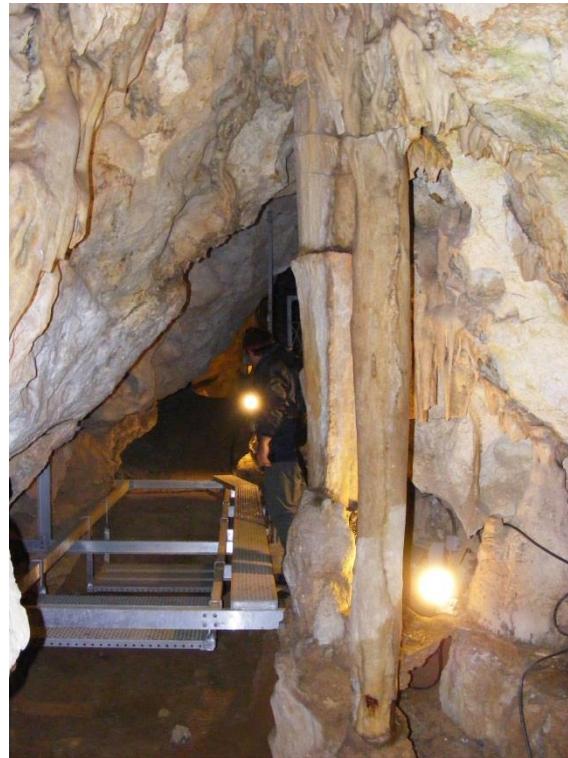


Figure 4 : Parcours aménagé dans la grotte de l'Observatoire. Photo©F. Ménétrier/CEN PACA

La grotte du Trocadéro a été inspectée avec l'accord du Directeur de la Régie des Tabacs. En effet, on accède à cette grotte par l'entrepôt de la Régie des Tabacs. L'entrée de la grotte est désormais murée, empêchant toute communication avec l'extérieur (voir photo suivante).



Figure 5 : Entrée murée de la grotte du Trocadéro. Photo©F. Ménétrier/CEN PACA

La grotte présente un taux d'humidité assez important avec une température d'environ 16°C. Une modification dans le régime de circulation de l'air de la grotte a été constatée il y a une dizaine d'années auparavant, la T° constante était de l'ordre de 13°C (com. pers. Directeur de la Régie des Tabacs). Cette grotte, qui fût probablement favorable à une vie souterraine, est aujourd'hui probablement azoïque en raison des modifications physiques et en l'absence de connexion possible avec l'extérieur (entrée fermée par une coulée de béton à l'intérieur du hangar de la Régie des Tabacs).



Figure 6 : Intérieur de la grotte du Trocadéro. Photo©F. Ménétrier/CEN PACA

3.3 Résultats des inventaires

Au total, 4 espèces ont été observées lors des prospections sur le territoire monégasque de mai 2012 à septembre 2013 : lézard des murailles, hémidactyle verruqueux, tarente de Maurétanie et crapaud commun. Les espèces contactées sont localisées sur la carte page suivante.

A ces observations s'ajoutent les observations de M. Vitti (Directeur du Jardin Animalier), transmises pour l'année 2012 :

- Une couleuvre esculape capturée (adulte) dans les Jardins Saint-Martin (printemps 2012) ;
- Une couleuvre de Montpellier capturée au niveau du boulevard des Moulins (été 2012) ;
- Les effectifs de lézard des murailles observés dans le Jardin animalier semblent sensiblement bas (Eté 2012).

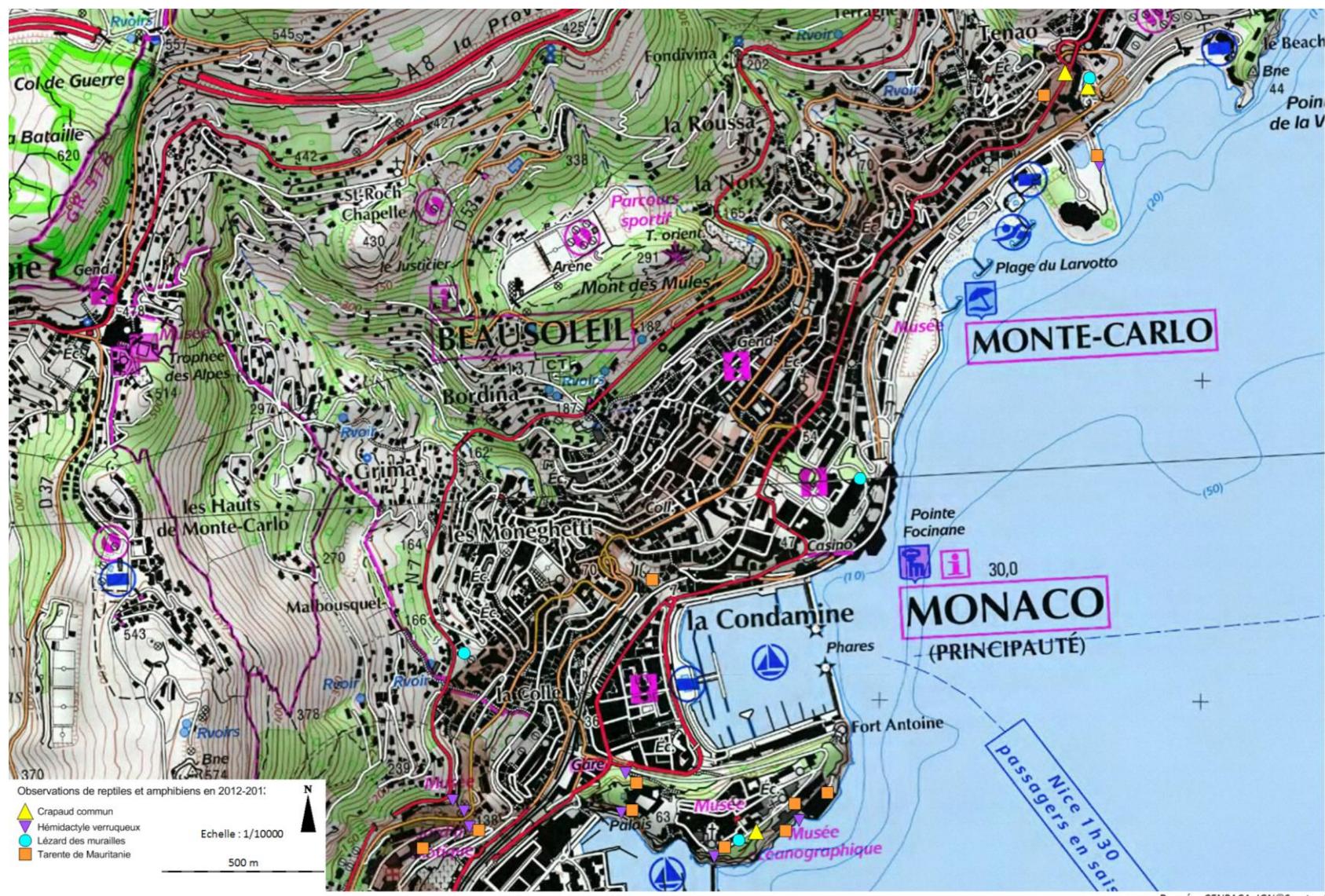
Au total, ce sont donc 6 espèces qui sont identifiées sur le territoire monégasque en 2013.

A noter dans la bibliographie, un individu spéléopé des Strinatii a été observé dans les fondations de l'actuel hôpital Princesse Grace (Aellen 1958). Cette donnée historique avait orienté les prospections du CEN PACA à la recherche de cette espèce patrimoniale qui n'est connue que des Alpes maritimes et de la Ligurie (Renet & al, 2012). Malheureusement, le spéléopé de strinatii ne semble pas s'être maintenu sur le territoire monégasque, les seuls habitats potentiellement favorables (cf. description des sites « Grottes du Jardin Exotique » et « Grotte du Trocadéro ») ne présentant plus les conditions de milieu nécessaires à la survie de cette espèce.

D'autres espèces non contactées dans le cadre du présent inventaires sont susceptibles d'être présente sur la Principauté de Monaco. C'est le cas la coronelle girondine, fortement potentielle : elle se nourrit de

tarentes, mais de mœurs nocturne et très discrète, sa présence reste très difficile à mettre en évidence. L'orvet fragile est également potentiel, principalement au Jardin Exotique où il pourrait être trouvé dans des stocks de terreau ou du compost.

Carte 2 : localisation des reptiles et amphibiens



La liste totale des espèces et leur statut est donné ci-après (les résultats bruts de l'inventaire herpétologique avec la localisation des données sont donnés en annexe).

Tableau 2 : Liste des espèces de reptile/amphibien et leur statut

Classe	Noms français	Noms scientifiques	Protection nationale française	Conventio de Berne	Directive Européenne "Habitats" Annexe II	Directive Européenne "Habitats" Annexe IV	Liste rouge française	Liste ZNIEFF PACA	Source des données
Amphibien	Crapaud commun	<i>Bufo bufo</i>	X				LC		I
Amphibien	Spéléorpès de Strinati*	<i>Speleomantes strinatii</i>	X	X	X	X	NT	R	B
Reptiles	Couleuvre d'esculape	<i>Zamenis longissimus</i>	X			X	LC		B
Reptiles	Couleuvre de Montpellier	<i>Malpolon monspessulanus</i>	X				LC		B
Reptiles	Hémidactyle verruqueux	<i>Hemidactylus turcicus</i>	X				NT	R	I
Reptiles	Lézard des murailles	<i>Podarcis muralis</i>	X			X			I
Reptiles	Tarente de maurétanie	<i>Tarentola mauritanica</i>	X				LC		I

Références réglementaires :

Convention de Berne "Convention relative à la conservation de la vie sauvage et du milieu naturel de l'Europe"

http://www.coe.int/t/dg4/cultureheritage/nature/bern/default_FR.asp?

Protection Nationale française « Arrêté du 19 novembre 2007 fixant les listes des amphibiens et des reptiles protégés sur l'ensemble du territoire et les modalités de leur protection ».

<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000017876248>

Directive européenne "Habitats" de 1992 (Annexe 2 et 4).

http://europa.eu/legislation_summaries/environment/nature_and_biodiversity/l28076_fr.htm

Liste Rouge Française. IUCN France, MNHN & SHF. 2008. La Liste rouge des espèces menacées en France, selon les catégories et critères de l'IUCN.

Chapitre Reptiles et Amphibiens de France métropolitaine. Dossier de presse. Paris.

<http://www.iucn.fr/Liste-rouge-reptiles-amphibiens.html>

CR = en danger critique d'extinction

EN = en danger

VU = vulnérable

NT = quasi menacée

C = préoccupation mineure en France

DD = données insuffisantes, statut indéterminé

ZNIEFF : statut de l'espèce en ZNIEFF PACA (2^e génération éd. 2004) = D (Déterminante) ou R (Remarquable)

* espèce probablement

Source des données :

B : bibliographie/ audit

I : inventaires CEN PACA

BD : base de données

3.4 Liste commentée des espèces contactées

L'ensemble des espèces rencontrées fait l'objet d'une description générale (caractéristiques, habitats) et d'un commentaire sur leur répartition sur la zone d'étude.

Hémidactyle verruqueux *Hemidactylus turcicus* (Linnaeus, 1758)

Classification :

- Règne : Animalia
- Embranchement : Chordata
- Classe : Reptilia
- Ordre : Squamata
- Famille : Gekkonidae

Statut :

Liste rouge : NT France métropolitaine

Réglementation

- Protection nationale française (art.3)
- Déterminante ZNIEFF PACA
- Convention de Berne (annexe III)



Figure 7 : hémidactyle d'Europe, Jardin du Palais Princier (19 juin 2012) - Photo©Sébastien SANT

DESCRIPTION/ CARACTERISTIQUES : L'hémidactyle verruqueux est un petit gecko (Longueur totale : 12 cm), sa peau fine et de couleur rosâtre est parsemée de petits tubercules. Il se distingue des deux autres espèces de geckos méditerranéens (tarente de Maurétanie et phyllodactyle d'Europe) par une griffe visible sur chacun des doigts, qui sont garnis sur leur face inférieure de deux rangées de lamelles adhésives.

HABITAT : Cette espèce de basse altitude fréquente les zones rocheuses du littoral méditerranéen principalement (on peut le trouver jusqu'à 250 m). Il occupe les fissures/interstices des zones rupestres naturelles et utilise également les murets de pierre pourvu que des caches soient accessibles (pierres non jointées).

ACTIVITE : L'hémidactyle verruqueux a une activité essentiellement nocturne pendant laquelle il cherche sa nourriture (insectes, araignées, isopodes...). Il reste actif une longue période de l'année sur notre littoral azuréen, de février à octobre principalement. Il possède une aire vitale et une activité similaire à la tarente de Maurétanie.

REPARTITION :

La répartition de l'hémidactyle est centrée sur le bassin méditerranéen, il est présent en France uniquement sur la zone littorale méditerranéenne des Alpes-Maritimes aux Pyrénées orientales. Sur le littoral azuréen, il semble bien représenté entre Nice et la frontière italienne, et une seule station insulaire est mentionnée. Ce gecko n'était connu dans les Alpes-Maritimes que de quelques localités continentales mais semble avoir été sous-prospecté, laissant penser que les populations sont sensiblement plus importantes.

Sur la Principauté de Monaco, on observe une population importante, saine et vigoureuse avec des individus de tous âges. L'espèce a été contactée sur 7 stations (cf. tableau de résultats bruts supra) auquel vient s'ajouter la station du vallon de Sainte Dévote sur laquelle le bureau d'Etude Naturalia a découvert une population.

Les plus fortes densités sont observées au niveau des Glacis et du Jardin Privé du Palais Princier, puis dans les Jardins Saint-Martin et le Jardin Animalier. Quelques individus ont été contactés sur le Jardin Exotique mais les conditions météorologiques peu favorables lors de la visite de terrain ne

permettent pas de conclure sur l'importance de la population sur cette station. L'hémidactyle verruqueux est donc relativement bien représenté sur le secteur de la zone d'étude mais les stations sont fragmentées sur l'ensemble du territoire monégasque. De plus, il se concentre uniquement dans les zones ayant un éclairage faible/nul. Ceci peut s'expliquer par la cohabitation, sur certains secteurs (Jardins Saint-Martin par exemple), avec la tarente de Maurétanie. Dans ce contexte, l'hémidactyle verruqueux aurait tendance à occuper les zones basses et les moins exposées à la lumière.



Figure 8 : hémidactyle d'Europe, Jardin Exotique (21 mai 2012) - Photo©Florence MENETRIER

Tarente de Maurétanie
Tarentola mauritanica (Linnaeus, 1758)

Classification :

- Règne : Animalia
- Embranchement : Chordata
- Classe : Reptilia
- Ordre : Squamata
- Famille : Phyllodactylidae
- Statut :

Liste rouge : LC France métropolitaine

Réglementation

- Protection nationale française
- Convention de Berne (annexe III)



Figure 9 : tarente de Maurétanie, Jardin Saint-Martin (19 juillet 2012) - Photo© Sébastien SANT

DESCRIPTION/ CARACTÉRISTIQUES : Ce gecko d'allure trapue peut atteindre une taille importante (longueur totale max : 19 cm). De couleur grisâtre, sa peau est dotée de picots de forme conique caractéristiques. Il se distingue également des deux autres espèces de geckos méditerranéens (hémidactyle verruqueux et phyllodactyle d'Europe) par une griffe visible uniquement sur les doigts n°3 et n°4 et présentant sur la face inférieure des doigts, 1 seule rangée de lamelles adhésives.

HABITAT : La tarente de Maurétanie présente la particularité de très bien s'accommoder d'un contexte urbain, on la trouve fréquemment sur les habitats humains (murs, toits). En milieu naturel, on la trouve sur différents micro-habitats : murets, cabanon, vignobles...

ACTIVITE : Cette espèce n'est pas strictement nocturne mais on l'observe facilement de nuit à proximité des éclairages urbains où elle se tient à l'affût de proies (régime alimentaire très large). Elle est active pratiquement toute l'année (février –nov).

REPARTITION : Cette espèce d'origine maghrébine est présente sur tout le pourtour méditerranéen. En France, cette espèce méditerranéenne stricte est présente sur les départements du littoral mais se rencontre aussi en Vaucluse et en Ardèche. Elle est d'une manière générale assez commune et abondante du fait de ses capacités d'adaptation au milieu anthropique.

Sur le territoire monégasque, la tarente a été contactée à chacune des sorties nocturnes. Elle semble relativement abondante sur le site où on l'observe en cohabitation avec l'hémidactyle d'Europe.



Figure 10 : tarente de Maurétanie, Jardin Exotique (21 mai 2012) - Photo©Sébastien SANT

Lézard des murailles
Podarcis muralis (Laurenti, 1768)

Classification :

- Règne : Animalia
- Embranchement : Chordata
- Classe : Reptilia
- Ordre : Squamata
- Famille : Lacertidae

Statut :

Liste rouge : LC France métropolitaine

Réglementation

- Protection nationale française
- Convention de Berne (annexe III)
- Directive 92/43/CEE "Habitats-Faune-Flore" (Annexe IV)



Figure 11 : lézard des murailles - Photo©Sébastien SANT

DESCRIPTION/ CARACTERISTIQUES : Ce petit lézard (longueur totale < 19 cm), à longue queue effilée et à coloration très variable suivant les régions, est l'espèce de lézard la plus commune du territoire français métropolitain.

HABITAT : Le lézard des murailles est une espèce très opportuniste et ubiquiste (que l'on rencontre partout), pourvu que l'habitat soit bien exposé et pourvu en abris. Il affectionne les milieux rocheux et s'adapte à tous les biotopes : murs de pierres, éboulis, falaises, carrières, broussailles, talus, vignobles, jardins, mais également habitations dans les villages.

ACTIVITE : Espèce exclusivement diurne, son activité démarre le matin avec les premiers rayons de soleil et il peut thermoréguler* parfois jusqu'au crépuscule, mais évite en général les heures les plus chaudes de la journée, caché dans un trou ou sous des pierres. Il chasse principalement au sol, dans les pierriers et dans la végétation.

REPARTITION : L'espèce est présente en Europe occidentale et centrale du nord de l'Espagne aux Balkans. Le Lézard des murailles se rencontre dans toute la France sauf dans la pointe extrême nord et la Corse.

Sur la zone d'étude, le lézard des murailles semble étonnamment assez peu représenté sur l'ensemble du territoire monégasque. Il a été contacté sur 4 stations du territoire mais ce résultat est à prendre avec précautions car les prospections ont été concentrées sur la recherche d'espèce à fort enjeu, nocturnes. Pourtant les contacts ont été peu nombreux sur les stations où il a été observé et cette faible abondance pourrait être imputée à un excès de jardinage ou à une prédation par les chats domestiques. En effet, le lézard des murailles a tendance à se raréfier d'une manière générale dans les zones urbanisées, en lien avec les deux facteurs précités (chat et jardinage) qui y sont prépondérants. A noter, l'utilisation de raticides dans le Parc Princesse Antoinette qui pourrait probablement expliquer l'absence totale de contact de cette espèce sur ce site, qui présente pourtant un habitat favorable (oliveraie, murets de pierre sèches) et les prospections ayant été réalisées sous des bonnes conditions d'observation (cf. session du 02 mai 2012).



**Figure 12 : Parc Princesse Antoinette et lézard des murailles à la source Marie (02 mai 2012) -
Photo©Florence MENETRIER**

Crapaud commun (sous espèce spinosus)
Bufo bufo (Linnaeus, 1758)

Classification :

- Règne : Animalia
- Embranchement : Chordata
- Classe : Amphibia
- Ordre : Anura
- Famille : Bufonidae

Statut :

Liste rouge : LC France métropolitaine

Réglementation

- Protection nationale française
- Convention de Berne (annexe III)



Figure 13 : crapaud commun, Jardin Saint Martin (09 juillet 2012) - Photo© Sébastien SANT

DESCRIPTION/ CARACTERISTIQUES : Ce crapaud de taille moyenne à grande (jusqu'à 11 cm chez la femelle), au museau ovale, a une pupille ovale horizontale et un iris rouge (orange) caractéristique. Les glandes parotoïdes* sont proéminentes et la peau est pustuleuse. La sous-espèce *Spinosus* présente des glandes parotoïdes plus volumineuses et des pustules plus abondantes sur le dos.

HABITAT : Présent du niveau de la mer jusqu'à 1500 m. d'altitude, le crapaud commun apprécie les milieux frais et boisés. Toutefois, il s'accommode très bien d'un contexte urbanisé pourvu qu'il trouve des caches pendant la journée sous des pierres, dans des trous ou fissures de murailles.

ACTIVITE : Le crapaud commun est généralement actif de nuit. La reproduction du crapaud commun est liée à la présence d'un point d'eau (étang, bassin). Son site d'hivernage (nov-fév) est généralement situé à moins de 500 m de ce point d'eau où il viendra se reproduire au printemps et déposer ses œufs. A noter que c'est une des rares espèces d'amphibiens qui ne craint pas la prédatation de ses têtards par les poissons. Les individus sont habituellement fidèles à un site de reproduction : si une population est détruite, l'espèce disparaîtra de cet endroit pendant un certain temps.

REPARTITION : Le crapaud commun est une espèce eurasiatique à large répartition, il est présent sur tout le territoire métropolitain (sauf en Corse). La sous-espèce *spinosus* n'est présente qu'en France méridionale. Sur le territoire monégasque, l'espèce a été contactée principalement sur deux sites : dans les pelouses du Jardin Saint Martin et à proximité de la source Marie. Les fontaines du Jardin et la source pourraient constituer son site de reproduction.



**Figure 14 : crapaud commun, Jardin Saint Martin (09 juillet 2012) et source Marie -
Photo©Florence MENETRIER**

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GLOSSAIRE

Herpétofaune : désigne l'ensemble des espèces de reptiles et par extension, des amphibiens d'une région donnée.

Glandes parotoïdes : glandes sous-cutanées à excrétion externe situées sur le dos, le cou et les épaules de certains crapauds et les salamandres.

Thermoréguler : mécanisme qui permet à un organisme (ou à un système) de conserver une température constante. Elle est le résultat de production et de déperdition de chaleur.

Annexe 1 : compte rendu des Sapeurs-pompiers



Monaco, le vendredi 1^{er} juin 2012

Le lieutenant-colonel VARO,
chef de Corps

à

Monsieur le Conseiller de Gouvernement
pour l'Intérieur
Ministère d'Etat
Place de la visitation
98000 MONACO

(voie hiérarchique)

O B J E T : Campagne d'inventaire des reptiles et amphibiens sur le territoire de la Principauté.

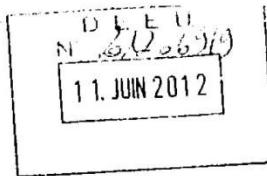
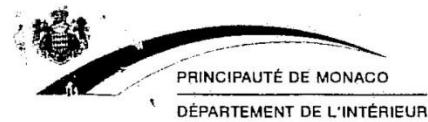
RÉFÉRENCE : votre transmission Int n° 2012.9424 CHV/VV du 23 mai 2012.

En réponse à votre transmission de référence, j'ai l'honneur de vous rendre compte que le Corps des sapeurs-pompiers ne tient aucun registre relatif à la capture de reptiles lors des ses interventions.

En revanche, sous la rubrique « faits d'animaux » faisant l'objet de nos statistiques annuelles, sont répertoriées les interventions liées à la capture ou récupération de reptiles. Les statistiques pour la principauté en 2009, 2010 et 2011 sont les suivantes :

2009	2010	2011
un reptile saurien un serpent	trois serpents	deux serpents





LE CONSEILLER DE GOUVERNEMENT
POUR L'INTÉRIEUR

SECRETARIAT

Int. n° 2012. 10252.
CHC/VV

Affaire : Campagne d'inventaire des reptiles et amphibiens sur le territoire de la Principauté -

- Pièce(s) transmise(s) -

- Votre note n° 2012-06919 en date du 18 mai 2012 (p.m.)
- Copie du compte rendu en date du 1^{er} juin 2012 de M. le Lieutenant-Colonel commandant le Corps des Sapeurs-Pompiers.

à

**Madame le Conseiller de Gouvernement
pour l'Equipement, l'Environnement et l'Urbanisme**

- Pour information, comme suite à sa note n° 2012-06919 du 18 mai 2012.

Monaco, le

P.Le Conseiller de Gouvernement
pour l'Intérieur
Le Directeur Général

Patrice CELLARIO

Copie à : M. le Lieutenant-Colonel commandant le Corps des Sapeurs-Pompiers

Annexe 2 : résultats bruts des inventaires herpétologiques

Date	Lieu-dit	Milieu	Espèces observées (Nb individus)	Type de session	Météo	Observateurs
02/05/2012	Parc Princesse Antoinette	jardins, murets	<i>P. muralis</i> (1)	diurne	T sec, ensoleillé (20°C)	F. Ménétrier, S. Sant, P. Tordjman, N. Bonnet
02/05/2012	Vallon, Source Marie	Tunel du vallon	<i>B. bufo</i> (1) <i>P. muralis</i> (1)	diurne		F. Ménétrier, S. Sant, P. Tordjman, N. Bonnet
21/05/2012	Jardin Exotique	jardins + grotte de l'Observatoire	<i>H. turcicus</i> (1) <i>T. mauritanica</i> (1)	nocturne	Après fortes pluies, temps très humide, T° = 16 °c	F. Ménétrier, S. Sant, V. Gaglio, M. Marquet
19/06/2012	Jardin du Palais Princier	Glacis + rondo	<i>H. turcicus</i> <i>T. mauritanica</i>	nocturne	Temps sec, T° = 26°C	F. Ménétrier, S. Sant, D. Touboul, V. Kulesza
09/07/2012	Jardins Saint-Martin	murets, rochers	<i>H. turcicus</i> <i>T. mauritanica</i> <i>B. bufo</i>	nocturne	Temps sec, T° = 28°C	F. Ménétrier, S. Sant, V. Gaglio, M. Marquet, D. Touboul
19/09/2012	Jardin Animalier	murets, rochers	<i>H. turcicus</i> <i>T. mauritanica</i>	nocturne	Temps sec, T° = 22°C	F. Ménétrier, S. Sant, V. Gaglio, JM. Vitti
03/10/2012	Grotte du Trocadéro	cavité naturelle	négatif	diurne	Humide T° = 15/16°C	F. Ménétrier, JM Lemaire
12/08/2013	entre la frontière ouest et les pépinières du Jardin Exotique	murets de soutènement de la route	<i>T. mauritanica</i> (2)	nocturne	T°C de 24°C	S. Sant & V. Gaglio
12/08/2013	Jardin de la Via Alpina	murs	<i>H. turcicus</i> (3) <i>T. mauritanica</i> (5)	nocturne	T°C de 24°C	S. Sant & V. Gaglio
12/08/2013	Descente de la Plage du "pont de fer"	escaliers	<i>T. mauritanica</i> <i>B. bufo</i> devant la source à la base des escaliers	nocturne	T°C de 24°C	S. Sant & V. Gaglio
12/08/2013	Enrochements du bord de mer derrière le Monte-Carlo Bay Hôtel	Blocs de la digue	<i>H. turcicus</i> <i>T. mauritanica</i>	nocturne	T°C de 24°C	S. Sant & V. Gaglio
12/08/2013	Vallon Sainte Dévote	rochers	<i>T. mauritanica</i> (1)	nocturne	T°C de 24°C	S. Sant & V. Gaglio
28/08/2013	Escalier de la falaise du Musée Océanographique	Rochers	<i>H. turcicus</i> (3) <i>T. mauritanica</i> (3)	nocturne	T°C de 22,5°C	S. Sant & V. Gaglio
28/08/2013	Zone entre la plage des pêcheurs et le Fort Antoine	Rochers	<i>T. mauritanica</i> (>5)	nocturne	T°C de 22,5°C	S. Sant & V. Gaglio
28/08/2013	Terrasses des prisons	Murets	<i>T. mauritanica</i>	nocturne	T°C de 22,5°C	S. Sant & V. Gaglio
28/08/2013	Jardins de Fontvieille (entre le chapiteau et la Roseraie Princesse Grace (celle-ci étant en travaux / non accessible) + jardins de la zone A)	jardins et murets	négatif	nocturne	T°C de 24,5°C	S. Sant & V. Gaglio
02/09/2013	Jardin Japonais	jardins et murets	négatif	diurne	T° : 24 et 26°C, H : 73 et 53%	S. Sant & V. Gaglio
02/09/2013	Jardins Saint-Martin	jardins et murets	<i>P. muralis</i>	diurne	T° : 24 et 26°C, H : 73 et 53%	S. Sant & V. Gaglio
02/09/2013	Derrière le Casino (Jardins des Spélugues et de la Petite Afrique)	Rocailles	<i>P. muralis</i>	diurne	T° : 24 et 26°C, H : 73 et 53%	S. Sant & V. Gaglio

Légende espèces :

T. mauritanica = *Tarentola mauritanica*

Tarente de Maurétanie

H. turcicus = *Hemidactylus turcicus*

Hémidactyle verruqueux

B. Bufo = *Bufo Bufo*

Crapaud commun

P. muralis = *Podarcis muralis*

Lézard des murailles

THE NETHERLANDS / PAYS-BAS

REPORT NETHERLANDS

ACTION PLAN FOR THE CONSERVATION OF THE CRESTED NEWT *TRITURUS CRISTATUS* SPECIES COMPLEX IN EUROPE (T-PVS/INF (2006) 17)

Dutch authorities have undertaken a lot of actions classified as URGENT PRIORITY ACTIONS. In short the fulfilled actions (*in italics/underlined*) are the following:

Habitat protection. Action 4.1.1. Designation of Natura 2000 areas

The Netherlands has designated 160 Natura 2000 areas. All areas are part of the National Ecological Network (NEN). The objective for establishing the NEN is to halt the loss of biodiversity in the Netherlands. The Great crested newt occurs in 34 Special Areas of Conservation (SACs)/ Natura 2000 sites aiming to reach the favourable conservation status on a national level.

http://www.synbiosys.alterra.nl/natura2000/documenten/profielen/soorten/Profiel_soort_H1166.pdf

<http://www.natura2000.nl/pages/kaartpagina.aspx>

de Bruin, A. & R. Zollinger (red.), 2011. Motivering Natura 2000 besluiten voor poldervissen (grote modderkruiper, bittervoorn, kleine modderkruiper), beekvissen (beekprik, rivierdonderpad, beekdonderpad), rivierprik, zeeprik, kamsalamander en geelbuikvuurpad. I.o.v. Ministerie EL&I. Stichting RAVON, Nijmegen.

Habitat management. Actions 4.2.1/4.2.2 prepare guidelines and disseminate them

Dutch authorities have prepared guidelines for Great crested newt conservation in which ecology, habitat management and mitigation measures are described. Disseminated by internet:

<http://www.rvo.nl/sites/default/files/2015/04/20150415%20Kamsalamander%20v1.0.pdf>

Habitat Management Action 4.2.4. Remove introduced predatory fish from ponds or ditches (...)

As part of conservation projects, e.g. the LIFE AMBITION project, many ponds have been restored, managed or created for T. cristatus. Predatory fish have been removed.

http://www.ravon.nl/Portals/0/PDF3/LIFE_ambition_levene_natuur.pdf

Bosman, W. & R. Zollinger & J. Janse, 2008. LIFE AMBITION – Amphibian Biotope Improvement in the Netherlands. Monitoring in de periode 2004-2008. Stichting RAVON. Rapportnr. 2008-21. 100 p.

Species Protection Action 4.3.2. Ensure that derogations from the species protection legislation in all range countries are accompanied by suitable environmental assessments and, where necessary, by adequate mitigation measures to maintain the conservation status of crested newts and to replace lost habitat.

This is the case in the Netherlands, mitigation measures and replacement of lost habitat is being fulfilled and looked after, although quality of replaced habitat(s) might be less than the original ones.

Distribution Surveys Action 4.5.1. Collate existing records and monitoring results for Triturus cristatus, Triturus carnifex, Triturus dobrogicus and Triturus karelinii throughout Europe (...)

Under the Network Ecological Monitoring (NEM) the Monitoring Network Amphibians is operated by the RAVON Foundation (Reptile Amphibian and Fish Conservation Netherlands). Netherlands

Statistics is responsible for the quality check's on the monitoring and the calculating of indexes and trends. Monitoring results and trends are published yearly.

<http://www.cbs.nl>

<http://www.netwerkecologischemonitoring.nl>

<http://www.ravon.nl/Infotheek/Soortinformatie/Amfibie%C3%ABn/Kamsalamander/tabid/1365/Default.aspx>

The Italian crested newt (*Triturus carnifex*) was introduced in one area in the central part of the Netherlands years ago, far outside its natural range, and will therefore be removed in short time. The threat is hybridization with Great crested newt at the expense of the latter.

Population and Conservation Status Monitoring Action 4.6.1. Develop a simple, standardised sampling methodology for monitoring and calculating the condition of crested newt populations that can be readily and cheaply employed in any European country.

The survey method used in the Netherlands is suitable to use in other countries as well. It is based on the work of skilled volunteers, coordinated and supported by professionals (herpetologists and statistician of Netherlands Statistics).

The overall conservation status of Great crested newt has been assessed as "favourable" (report December 2013). However, since, amphibian diseases like Ranavirus and other potential infections, like the chytrid fungus *Batrachochytrium salamandrivorans*, entered. They pose severe threats to this species and they cannot easily be dealt with.

http://cdr.eionet.europa.eu/Converters/run_conversion?file=nl/eu/art17/envukhtvq/NL_species_report_s_2013-12-09compleet2.xml&conv=354&source=remote

ACTION PLAN FOR THE CONSERVATION OF THE SAND LIZARD (*LACERTA AGILIS*) IN NORTHWEST EUROPE (T-PVS/INF (2006) 18)

Habitat Protection Action 4.1.1. Ensure that all habitats supporting known sand lizard populations in the Netherlands are protected from any threats of further habitat loss by appropriate national designations.

The Sand Lizard lives for more than 95% inside the National Ecological Network (NEN) and therefore its habitat is protected against any threats of further habitat loss.

Habitat Management Action 4.2.1. Prepare management plans for all known sand lizard sites (or ensure existing plans are suitably modified) that map key sand lizard areas and fully take into account the likely movements and particular ecological requirements of this species on each site.

Dutch authorities have prepared guidelines for Sand Lizard conservation in which ecology, habitat management and mitigation measures are described. Disseminated by internet:

<http://www.rvo.nl/sites/default/files/2015/04/20150415%20Zandhagedis%20v1.0.pdf>

Habitat Management Action 4.2.2. Control vegetation succession on key sand lizard heathland and sand dune sites by the regular removal of trees and scrub and the control of bracken, as necessary, ensuring that sufficient cover is retained where this is important for creating a favourable microclimate in exposed areas.

Large parts of coastal dune areas have been restored recently or will be in the near future and one of the essential measures taken was the removal of trees and shrub. Sand Lizard reacts positively and the population trend of Sand Lizard (1993-2014) is slightly improving ($p<0.01$).

<http://www.ravon.nl/Portals/0/PDF3/schubbenslijm21.pdf>

Habitat Management Action 4.2.3.- Action 4.2.9

Nature reserve management in Sand Lizard areas is in general quite well, but overgrazing – mainly in inland heathlands -affects the species in the sense that lower densities occur than could be possible. Habitat Quality for Sand lizard in dune areas are good, but for inland heathlands it is qualified as moderate/inadequate, caused by overgrazing and turf cutting on too large a scale.

Distribution Surveys Action 4.5.1. Continue distribution surveys and the mapping of *Lacerta agilis agilis* habitats in the Netherlands

Under the Network Ecological Monitoring (NEM) the Monitoring Network the Monitoring Network Reptiles is operated by the RAVON Foundation (Reptile Amphibian and Fish Conservation Netherlands) since 1993. Netherlands Statistics is responsible for the quality check's on the monitoring and the calculating of indexes and trends. Monitoring results and trends are published each year.

<http://www.cbs.nl>

<http://www.netwerkecologischemonitoring.nl>

[http://www.ravon.nl/Website2013/RAVONActief/Waarnemen/Monitoren\(NEM\)/MeetnetReptielen/tabid/1520/Default.aspx](http://www.ravon.nl/Website2013/RAVONActief/Waarnemen/Monitoren(NEM)/MeetnetReptielen/tabid/1520/Default.aspx)

Population and Conservation Status Monitoring Action 4.6.1.

http://cdr.eionet.europa.eu/Converters/run_conversion?file=nl/eu/art17/envukhtvq/NL_species_report_2013-12-09compleet2.xml&conv=354&source=remote

Range Assessment, population Assessment and Future prospect Assessment have been stated as “Favourable” for Sand Lizard in the Netherlands (report December 2013). However Habitat Assessment is “inadequate”. Habitat Quality for Sand lizard in dune areas is good, but for inland heathlands it is qualified as moderate/inadequate. Therefore, the overall assessment of the conservation status has been qualified as “inadequate”.

Compiled by

Ronald Zollinger (RAVON, Netherlands)

22 June 2015

(by order of Ministry of Economic Affairs, Netherlands)

POLAND / POLOGNE

REPORT ON RELEVANT ACTION ON AMPHIBIANS AND REPTILES IN POLAND

GENERAL DIRECTORATE FOR ENVIRONMENTAL PROTECTION, 2015

First of all it is necessary to emphasize that all species of reptiles (10) and amphibians (18) are protected in Poland.

Each activity such as killing or destroying of habitats is strictly prohibited without a special derogation of Ministry of Environment (in national parks), General Director for Environmental Protection or a competent regional director for environmental protection.

In Poland the environmental impact assessment is obligatory before certain type of investments. The influence on amphibians and reptiles is assessed in this procedure. Plans and programmes are also assessed in earlier phase - during the Strategic Environmental Assessment. For example, such assessment of the effects of the implementation of the National Roads Construction Programme for the years 2011-2015 was prepared. The environmental report prepared for the draft Programme included an annex concerning strictly amphibians.

Guidelines on amphibian protection during construction works [“Poradnik ochrony płazów”, R. T. Kurek, M. Rybacki, M. Sołtysiak, Bystra 2011] was developed in order to minimize negative influence of the roads development on this group of animals.

The guidelines which concern both designing and constructing of passages for animals and which treat about the mitigation of the impact of roads development on mortality of animals also have been prepared. The guidelines are disseminated via internet too (the web page: http://www.gdos.gov.pl/files/artykuly/5437/poradnik_projektowania_przejsc_dla_zwierzat.pdf). Some chapters are dedicated to passages for amphibians.

It is worth to mention that for example, Autostrada Wielkopolska, the contractor of the A2 motorway connecting Warsaw with the German border, has built over 150 passages for animals: 26 for large animals, 12 for medium-sized, and 68 for the small ones. Additional 50 passages were provided for lizards and amphibians. This makes the Polish A2 motorway the most environmentally-friendly one in Europe. The A4 motorway, running along the Sudetes and Carpathian Mountains in the south, features similar facilities. Scientists monitoring the motorway have observed that animals can pass these green bridges over 5,000 times during one year. One of the concerns during road construction is to control amphibians from being killed in temporary breeding sites located in building area.

Projects concerning amphibians or reptiles protection have been also carried out. Some of them were dedicated to conservation of the European pond turtle (*Emys orbicularis*) and the smooth snake (*Coronella austriaca*).

SLOVAK REPUBLIC / RÉPUBLIQUE SLOVAQUE

CONSERVATION STATUS OF AMPHIBIANS AND REPTILES IN SLOVAKIA BERN CONVENTION REPORT FOR THE PERIOD 2007 - 2014



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INTRODUCTION

The area of Slovak Republic is located in the middle of Europe on the boundary line of the Pannonic and Alpine (Carpathian) bioregions. Contact of these biogeographic regions results in rich fauna diversity, although the climatic conditions (temperate and cold climatic zones) restrict the number of poikilothermic tetrapod species, especially reptiles. **There are 17 autochthonous species and 1 hybridogenetic hybrid taxa of amphibians and 12 autochthonous reptile species** living in the Slovak Republic. Additional reptiles include several alien species of turtles.

In this paper, we use the term “herpetofauna” to address both reptiles and amphibians.

LEGAL PROTECTION

All native herpetofauna species are included in the red lists of the Slovak fauna and they are also protected by national legislation (transposing among others the Bern Convention and EU Habitats Directive):

- Act No. 543/2002 Coll. on Nature and Landscape Protection as amended (valid since January 1st, 2003),
- Ordinance of the Ministry of the Environment of the Slovak Republic No. 24/2003 Coll. (valid since February 1st, 2003).

Within 473 sites of Community importance designated according the the EU Habitats Directive (92/43/EEC) following are aimed to protect also herpetofauna:

SKUEV0002 Lúky pod Ukorovou (*Triturus cristatus, Bombina variegata*)

SKUEV0003 Rimava (*Bombina variegata*)

SKUEV0006 Latorica (*Bombina bombina, Triturus dobrogicus, Emys orbicularis*)

SKUEV0007 Čičarovský les (*Bombina bombina*)

SKUEV0008 Repiská (*Bombina variegata*)

SKUEV0011 Svetlica (*Bombina variegata*)

SKUEV0012 Bešiansky polder (*Bombina bombina*)

SKUEV0014 Lázky (*Bombina variegata*)

SKUEV0018 Lúka pod cintorínom (*Bombina variegata*)

SKUEV0019 Tarbucka (*Bombina bombina, Emys orbicularis*)

SKUEV0026 Raškovský luh (*Bombina bombina*)

SKUEV0030 Horešské lúky (*Bombina bombina*)

SKUEV0032 Ladmovské vápence (*Bombina bombina*)

SKUEV0034 Boršiansky les (*Bombina bombina*)

SKUEV0035 Čebovská lesostep (*Bombina variegata*)

SKUEV0036 Litava (*Bombina variegata*)

SKUEV0038 Oborínske jamy (*Bombina bombina*)

SKUEV0044 Badínsky prales (*Triturus montandoni, Bombina variegata*)

SKUEV0045 Kopa (*Bombina variegata*)

SKUEV0047 Dobročský prales (*Triturus montandoni*)

SKUEV0048 Dukla (*Triturus cristatus, Triturus montandoni, Bombina variegata*)

SKUEV0049 Alívium Rieky (*Bombina variegata*)

SKUEV0053 Kiarovský močiar (*Bombina bombina*)

SKUEV0056 Habáňovo (*Triturus montandoni*)

SKUEV0057 Rašeliniská Oravskej kotliny (*Triturus montandoni, Bombina variegata*)

SKUEV0058 Tlстá (*Bombina variegata*)

SKUEV0059 Jelšie (*Bombina variegata*)

SKUEV0060 Chraste (*Bombina variegata*)

SKUEV0061 Demänovská slatina (*Bombina variegata*)

SKUEV0062 Príboj (*Bombina variegata*)

SKUEV0063 Ublianka (*Bombina bombina, Bombina variegata*)

SKUEV0064 Bratislavské luhy (*Triturus dobrogicus, Bombina bombina*)

SKUEV0067 Čenkov (*Bombina bombina*)

SKUEV0073 Listové jazero (*Bombina bombina*)

SKUEV0075 Klátovské rameno (*Bombina bombina*)

SKUEV0077 Dunajské trstiny (*Bombina bombina*)

SKUEV0084 Zátoň (*Bombina bombina*)

SKUEV0085 Dolný háj (*Triturus dobrogicus, Bombina bombina*)

SKUEV0090 Dunajské luhy (*Triturus dobrogicus, Bombina bombina*)

- SKUEV0094 Veľký les (*Bombina bombina*)
SKUEV0095 Panské lúky (*Bombina bombina*)
SKUEV0096 Šurianské slaniská (*Bombina bombina*)
SKUEV0097 Palárikovské lúky (*Bombina bombina*)
SKUEV0101 Klokočovské rašeliniská (*Triturus montandoni, Bombina variegata*)
SKUEV0102 Čertov (*Bombina bombina, Bombina variegata*)
SKUEV0104 Homoľské Karpaty (*Bombina bombina*)
SKUEV0105 Spišskopodhradské travertíny (*Bombina variegata*)
SKUEV0108 Ordzovianska dubina (*Triturus montandoni, Bombina variegata*)
SKUEV0110 Levočská dubina (*Triturus montandoni, Bombina variegata*)
SKUEV0112 Slovenský raj (*Triturus cristatus, Triturus montandoni, Bombina variegata*)
SKUEV0113 Dlhé lúky (*Triturus dobrogicus, Bombina bombina*)
SKUEV0116 Jakubovské rybníky (*Bombina bombina*)
SKUEV0117 Abrod (*Bombina bombina*)
SKUEV0120 Jasenácke (*Bombina bombina*)
SKUEV0123 Dúbrava (*Bombina bombina*)
SKUEV0124 Bogdalický vrch (*Triturus dobrogicus, Bombina bombina*)
SKUEV0125 Gajarské alúvium Moravy (*Triturus dobrogicus, Bombina bombina*)
SKUEV0128 Rokoš (*Bombina variegata*)
SKUEV0130 Zobor (*Bombina bombina*)
SKUEV0131 Gýmeš (*Bombina bombina*)
SKUEV0134 Kulháň (*Bombina bombina*)
SKUEV0138 Livinská jelšina (*Bombina bombina*)
SKUEV0145 Medzi Bormi (*Triturus montandoni, Bombina variegata*)
SKUEV0147 Žarnovica (*Bombina variegata*)
SKUEV0148 Vlára (*Bombina variegata*)
SKUEV0150 Červený Grúň (*Bombina variegata*)
SKUEV0151 Pohorelské vrchovisko (*Bombina variegata*)
SKUEV0152 Sliačske travertíny (*Bombina variegata*)
SKUEV0153 Horné lazy (*Bombina variegata*)
SKUEV0155 Alúvium Starej Nitry (*Bombina bombina*)
SKUEV0159 Alúvium Žitavy (*Bombina bombina*)
SKUEV0160 Karáb (*Bombina bombina*)
SKUEV0161 Suchohradské alúvium Moravy (*Triturus dobrogicus, Bombina bombina*)
SKUEV0162 Grgás (*Bombina bombina*)
SKUEV0163 Rudava (*Emys orbicularis*)
SKUEV0164 Revúca (*Triturus montandoni, Bombina variegata*)
SKUEV0165 Kútsky les (*Triturus dobrogicus, Bombina bombina*)
SKUEV0166 Ciglát (*Triturus dobrogicus, Bombina bombina*)
SKUEV0168 Horný les (*Triturus dobrogicus, Bombina bombina*)
SKUEV0177 Šmolzie (*Triturus dobrogicus, Bombina bombina*)
SKUEV0178 V studienkach (*Bombina bombina*)
SKUEV0179 Červený rybník (*Bombina bombina*)
SKUEV0182 Číčovské luhy (*Bombina bombina*)
SKUEV0183 Veľkolélsky ostrov (*Bombina bombina*)
SKUEV0184 Burdov (*Bombina bombina*)
SKUEV0185 Pramene Hruštínky (*Triturus montandoni*)
SKUEV0186 Mláčky (*Triturus montandoni*)
SKUEV0187 Rašeliniská Oravských Beskýd (*Triturus montandoni, Bombina variegata*)
SKUEV0188 Pilsko (*Triturus montandoni*)
SKUEV0189 Babia hora (*Triturus montandoni*)
SKUEV0190 Slaná voda (*Triturus montandoni, Bombina variegata*)

- SKUEV0191 Rašeliniská Bielej Oravy (*Triturus montandoni*)
SKUEV0192 Prosečné (*Triturus montandoni, Bombina variegata*)
SKUEV0194 Hybická tiesňava (*Bombina variegata*)
SKUEV0197 Salatín (*Bombina variegata*)
SKUEV0198 Zvolen (*Triturus montandoni, Bombina variegata*)
SKUEV0200 Klenovský Vepor (*Bombina variegata*)
SKUEV0201 Gavurky (*Bombina variegata*)
SKUEV0203 Stolica (*Bombina variegata*)
SKUEV0204 Homoľa (*Bombina variegata*)
SKUEV0205 Hubková (*Triturus montandoni, Bombina variegata*)
SKUEV0208 Senianske rybníky (*Bombina bombina*)
SKUEV0209 Morské oko (*Triturus cristatus, Bombina variegata*)
SKUEV0210 Stinská (*Triturus cristatus, Triturus montandoni, Bombina variegata*)
SKUEV0211 Daňová (*Triturus montandoni, Bombina variegata*)
SKUEV0216 Sitno (*Bombina variegata*)
SKUEV0221 Varínka (*Bombina variegata*)
SKUEV0222 Jelešňa (*Triturus montandoni, Bombina variegata*)
SKUEV0224 Jereňaš (*Bombina variegata*)
SKUEV0225 Muránska planina (*Triturus montandoni, Bombina variegata*)
SKUEV0228 Švihrová (*Bombina variegata*)
SKUEV0229 Bukovské vrchy (*Triturus cristatus, Triturus montandoni, Bombina variegata*)
SKUEV0230 Makovica (*Bombina variegata*)
SKUEV0232 Laborec (*Triturus cristatus*)
SKUEV0233 Sútok Udavy s Ílovnicou (*Bombina variegata*)
SKUEV0234 Ulička (*Triturus cristatus, Triturus montandoni, Bombina variegata*)
SKUEV0238 Veľká Fatra (*Triturus montandoni, Bombina variegata*)
SKUEV0243 Orava (*Triturus montandoni, Bombina variegata*)
SKUEV0244 Harmanecký Hlboký jarok (*Triturus montandoni*)
SKUEV0248 Močidlianska skala (*Bombina variegata*)
SKUEV0249 Hrbatá lúčka (*Bombina variegata*)
SKUEV0251 Zázrivské lazy (*Triturus cristatus, Triturus montandoni, Bombina variegata*)
SKUEV0252 Malá Fatra (*Triturus montandoni, Bombina variegata*)
SKUEV0253 Váh (*Bombina variegata*)
SKUEV0254 Močiar (*Bombina variegata*)
SKUEV0255 Šujské rašelinisko (*Bombina variegata*)
SKUEV0256 Strážovské vrchy (*Bombina variegata*)
SKUEV0258 Tlstý vrch (*Bombina variegata*)
SKUEV0259 Stará hora (*Bombina variegata*)
SKUEV0262 Čajkovské bralie (*Bombina variegata*)
SKUEV0263 Hodrušská hornatina (*Bombina variegata*)
SKUEV0264 Klokoč (*Bombina variegata*)
SKUEV0265 Sut' (*Bombina variegata*)
SKUEV0266 Skalka (*Bombina variegata*)
SKUEV0267 Biele hory (*Bombina variegata*)
SKUEV0269 Ostrovné lúčky (*Triturus dobrogicus, Bombina bombina*)
SKUEV0270 Hrušov (*Bombina bombina*)
SKUEV0272 Vozokánsky luh (*Bombina bombina*)
SKUEV0273 Vtáčnik (*Bombina variegata*)
SKUEV0274 Baské (*Bombina variegata*)
SKUEV0275 Kňaží stôl (*Bombina variegata*)
SKUEV0278 Brezovské Karpaty (*Bombina variegata*)
SKUEV0279 Šúr (*Triturus dobrogicus, Bombina bombina*)

- SKUEV0280 Devínska Kobyla (*Bombina bombina*)
SKUEV0281 Tŕstie (*Triturus montandoni, Bombina variegata*)
SKUEV0282 Tisovský kras (*Bombina variegata*)
SKUEV0284 Teplické stráne (*Bombina variegata*)
SKUEV0285 Alúvium Muráňa (*Triturus montandoni, Bombina variegata*)
SKUEV0286 Hornádske vápence (*Bombina variegata*)
SKUEV0287 Galmus (*Triturus montandoni, Bombina variegata*)
SKUEV0288 Kysucké Beskydy (*Triturus montandoni, Bombina variegata*)
SKUEV0290 Horný tok Hornádu (*Triturus montandoni, Bombina variegata*)
SKUEV0291 Svätojánsky potok (*Triturus montandoni, Bombina variegata*)
SKUEV0293 Klúčovské rameno (*Bombina bombina*)
SKUEV0295 Biskupické luhy (*Bombina bombina*)
SKUEV0296 Turková (*Bombina variegata*)
SKUEV0297 Brezinky (*Bombina variegata*)
SKUEV0298 Brvnište (*Bombina variegata*)
SKUEV0299 Baranovo (*Bombina variegata*)
SKUEV0300 Skribňovo (*Bombina variegata*)
SKUEV0301 Kopec (*Bombina variegata*)
SKUEV0302 Ďumbierske Tatry (*Triturus montandoni, Bombina variegata*)
SKUEV0303 Alúvium Hrona (*Triturus montandoni, Bombina bombina, Bombina variegata*)
SKUEV0304 Oravská vodná nádrž (*Triturus montandoni, Bombina variegata*)
SKUEV0305 Choč (*Bombina variegata*)
SKUEV0306 Pod Suchým hrádkom (*Triturus montandoni, Bombina variegata*)
SKUEV0307 Tatry (*Triturus montandoni, Bombina variegata*)
SKUEV0308 Machy (*Bombina variegata*)
SKUEV0310 Kráľovohorské Tatry (*Triturus montandoni, Bombina variegata*)
SKUEV0311 Kačenky (*Triturus dobrogicus, Bombina bombina*)
SKUEV0312 Devínske alúvium Moravy (*Triturus dobrogicus, Bombina bombina*)
SKUEV0313 Devínske jazero (*Triturus dobrogicus, Bombina bombina*)
SKUEV0314 Morava (*Triturus dobrogicus, Bombina bombina*)
SKUEV0315 Skalické alluvium Moravy (*Triturus dobrogicus, Bombina bombina*)
SKUEV0319 Poľana (*Triturus montandoni, Bombina variegata*)
SKUEV0322 Fintické svahy (*Bombina variegata*)
SKUEV0323 Demjatské kopce (*Bombina variegata*)
SKUEV0325 Medzianske skalky (*Bombina variegata*)
SKUEV0326 Strahuľka (*Triturus cristatus, Bombina variegata*)
SKUEV0327 Milič (*Bombina bombina*)
SKUEV0328 Stredné Pohornádie (*Bombina variegata*)
SKUEV0329 Kováčske lúky (*Bombina bombina*)
SKUEV0331 Čergovský Minčol (*Bombina variegata*)
SKUEV0332 Čergov (*Triturus cristatus, Triturus montandoni, Bombina variegata*)
SKUEV0334 Veľké ošturnianske jazero (*Triturus montandoni, Bombina variegata*)
SKUEV0335 Malé ošturnianske jazerá (*Bombina variegata*)
SKUEV0336 Torysa (*Bombina variegata*)
SKUEV0337 Pieniny (*Bombina variegata*)
SKUEV0348 Čierna Moldava (*Bombina variegata*)
SKUEV0350 Brzotínske skaly (*Bombina variegata*)
SKUEV0354 Hnilecké rašeliniská (*Bombina variegata*)
SKUEV0355 Fabiánka (*Bombina variegata*)
SKUEV0356 Horný vrch (*Bombina variegata*)
SKUEV0365 Dálovský močiar (*Bombina bombina*)
SKUEV0366 Drienčanský kras (*Bombina variegata*)

- SKUEV0367 Holubyho kopanice (*Bombina variegata*)
SKUEV0368 Brezovská dolina (*Bombina variegata*)
SKUEV0369 Pavúkov jarok (*Bombina bombina*)
SKUEV0371 Žalostiná (*Bombina variegata*)
SKUEV0372 Krivoklátske lúky (*Bombina variegata*)
SKUEV0374 Záhradská (*Bombina variegata*)
SKUEV0376 Vršatecké bradlá (*Bombina variegata*)
SKUEV0377 Lukovský vrch (*Bombina variegata*)
SKUEV0378 Nebrová (*Bombina variegata*)
SKUEV0380 Tematínske vrchy (*Bombina variegata*)
SKUEV0382 Turiec a Blatnický potok (*Triturus cristatus, Bombina variegata*)
SKUEV0384 Klenovské Blatá (*Bombina variegata*)
SKUEV0385 Pliškov (*Bombina variegata*)
SKUEV0386 Hostovické lúky (*Triturus cristatus*)
SKUEV0387 Beskyd (*Triturus montandoni, Bombina variegata*)
SKUEV0395 Pohrebište (*Bombina bombina, Emys orbicularis*)
SKUEV0399 Bacúšska jelšina (*Bombina variegata*)
SKUEV0400 Detviansky potok (*Triturus montandoni, Bombina variegata*)
SKUEV0401 Dubnícke bane (*Bombina variegata*)
SKUEV0512 Mokrý les (*Bombina bombina*)
SKUEV0513 Bencov mlyn (*Triturus dobrogicus, Bombina bombina*)
SKUEV0552 Lohotský močiar (*Bombina bombina*)
SKUEV0563 Šifflovské (*Bombina variegata*)
SKUEV0568 Borotová (*Bombina variegata*)
SKUEV0575 Prepadlisko (*Bombina variegata*)
SKUEV0576 Tlstá hora (*Bombina variegata*)
SKUEV0578 Jachtár (*Bombina variegata*)
SKUEV0579 Mituchovské (*Bombina variegata*)
SKUEV0580 Dolné Branné (*Bombina variegata*)
SKUEV0589 Chynoriantsky luh (*Bombina variegata*)
SKUEV0641 Papradianka (*Bombina variegata*)
SKUEV0642 Javornícky hrebeň (*Triturus montandoni, Bombina variegata*)
SKUEV0644 Petrovička (*Bombina variegata*)
SKUEV0655 Predmieranka (*Bombina variegata*)
SKUEV0657 Malý Polom (*Bombina variegata*)
SKUEV0658 Ústie Bielej Oravy (*Triturus montandoni, Bombina variegata*)
SKUEV0659 Koleňová (*Triturus montandoni*)
SKUEV0660 Macangov Beskyd (*Triturus montandoni, Bombina variegata*)
SKUEV0661 Hruštínska hoľa (*Triturus montandoni, Bombina variegata*)
SKUEV0663 Šíp (*Bombina variegata*)
SKUEV0664 Uholníky (*Bombina variegata*)
SKUEV0665 Strečnianske meandre Váhu (*Bombina variegata*)
SKUEV0694 Vrchslatina (*Triturus montandoni, Bombina variegata*)
SKUEV0709 Poš (*Bombina variegata*)
SKUEV0712 Osturniansky potok (*Bombina variegata*)
SKUEV0729 Rosiarka (*Bombina variegata*)
SKUEV0755 Regetovské rašelinisko (*Triturus montandoni, Bombina variegata*)
SKUEV0761 Vydranka (*Bombina variegata*)
SKUEV0763 Horný tok Výravy (*Bombina variegata*)
SKUEV0778 Lipníkovské (*Bombina bombina*)
SKUEV1007 Čičarovský les (*Bombina bombina*)
SKUEV1059 Jelšie (*Bombina variegata*)

- SKUEV1125 Gajarské alúvium Moravy (*Triturus dobrogicus*, *Bombina bombina*)
 SKUEV1152 Sliačske travertíny (*Bombina variegata*)
 SKUEV1182 Číčovské luhy (*Bombina bombina*)
 SKUEV1227 Čilízske močiare (*Bombina bombina*)
 SKUEV1256 Strážovské vrchy (*Bombina variegata*)
 SKUEV1269 Ostrovné lucky (*Triturus dobrogicus*, *Bombina bombina*)
 SKUEV1278 Brezovské Karpaty (*Bombina variegata*)
 SKUEV1293 Klúčovské rameno (*Bombina bombina*)
 SKUEV1297 Brezinky (*Bombina variegata*)
 SKUEV1303 Alúvium Hrona (*Triturus montandoni*, *Bombina variegata*)
 SKUEV1311 Kačenky (*Triturus dobrogicus*, *Bombina bombina*)
 SKUEV1337 Pieniny (*Bombina variegata*)
 SKUEV1382 Beskyd (*Triturus montandoni*, *Bombina variegata*)

DISTRIBUTION

Extinct species in the Slovak Republic: There are no confirmed herpetofauna extinctions in the area of the Slovak Republic for the last few centuries, although there are records in some old publications of several species, which are not known to exist in the area today (there are 4 reptile species mentioned in some publications from the 19th and 20th centuries: *Podarcis tauricus* (*Lacerta taurica*), *Coluber caspius* (*Coluber jugularis caspius*), *Vipera ammodytes* and *Vipera ursinii*; their real autochthonous occurrence in Slovakia, even in the times of their records, is questionable however).

Very rare species, only in a few isolated sites: The rarest species of Slovak herpetofauna is *Emys orbicularis*, probably with only 2 reported viable populations (the species is present at more sites, but usually in very small number of individuals, the reproduction success and future persistence of these extremely small populations is questionable). Another rare species *Ablepharus kitaibelii* has distribution limited only to several southernmost sites of the central part of country. The lowland form of *Zootoca vivipara* (*Z. v. pannonica*) has also only limited distribution, currently known from small area in south-eastern part of the country.

Species with a wide distribution area, but threatened by habitat degradation, human activities or invasive alien species: *Triturus cristatus*, *Triturus dobrogicus*, *Triturus montandoni*, *Triturus vulgaris*, *Triturus alpestris*, *Bombina bombina*, *Bombina variegata*, *Pelobates fuscus*, *Bufo bufo*, *Hyla arborea*, *Rana arvalis*, *Rana ridibunda*, *Rana lessonae*, *Lacerta agilis*, *Lacerta viridis*, *Podarcis muralis*, *Zootoca vivipara*, *Coronella austriaca*, *Natrix natrix*, *Natrix tessellata*, *Elaphe longissima*, *Vipera berus*.

DISTRIBUTION OF PARTICULAR SPECIES (DETAILS)

Data on herpetofauna species are collected in Slovakia by a new monitoring system (since 2013) aimed mainly on species and habitats of the European interest. It follows data collection (mapping in 2007 and 2008, together with older data) of single species preceded the monitoring, these data were used to create the species distribution maps. The new monitoring system (since 2013) includes establishment of permanent monitoring plots for each concern species. In the text below, we state a short description of the herpetofauna taxa distribution in Slovakia and also distribution maps (if data is available) based on current knowledge. In 2015 a detailed assessment of the population and area size, and assessment of the state of single species will be undertaken.

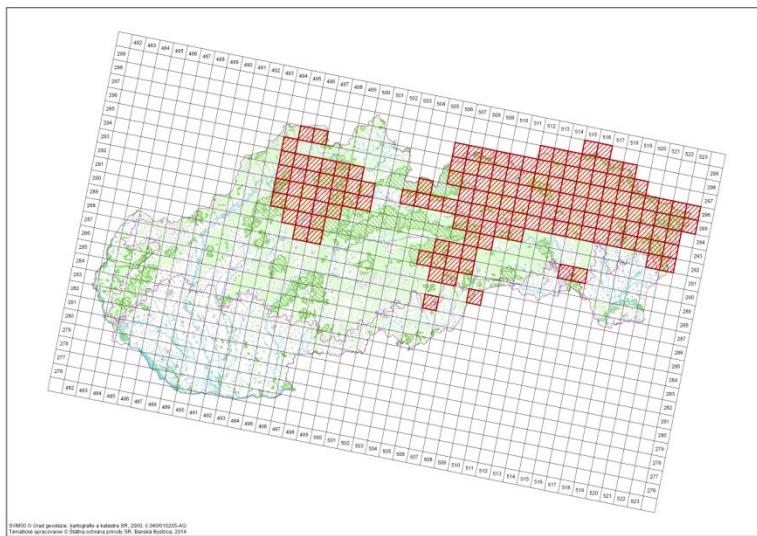
Salamandra salamandra

The species is widely distributed in the Carpathian bioregion of Slovakia, usually above the altitude of 150 – 200 m above sea level, up to ca 1 000 m a.s.l. (locally also slightly more). Natural habitats are usually oak and beech forests, it is rarer in forests dominated by spruce.

Triturus cristatus

The crested newt is typical for the Carpathian bioregion, distributed mostly in the eastern part of the country, with some occurrences in the central part, where it is quite rare. In the area of Slovakian karst the distribution range meets with that of *Triturus dobrogicus* and these species are known to interbreed. Its recent abundance and number of existing populations is much lower than in the 20th century, making it the most endangered newt species in Slovakia. The main cause of this situation is habitat degradation – destruction of water bodies suitable for the reproduction and introduction of predatory fish species into small ponds.

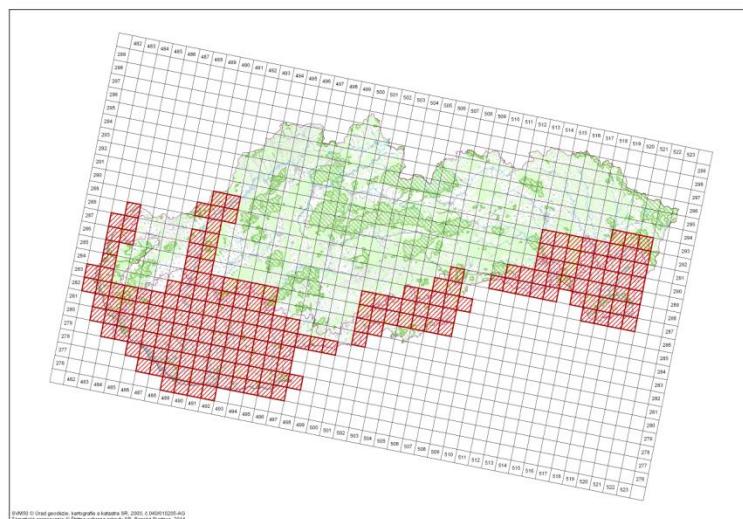
Distribution map of *Triturus cristatus*



Triturus dobrogicus

The Danube newt in Slovakia is widely distributed in the Pannonian bioregion, in alluvial areas around big rivers like Morava, Danube, Váh (northernmost known site Trenčianska Teplá near town Trenčín), Ipeľ, Hornád, Bodrog, Latorica, Tisa. Although widely distributed, abundance and number of populations of this species had declined during the 20th century, usually from similar reasons as *Triturus cristatus*.

Distribution map of *Triturus dobrogicus*



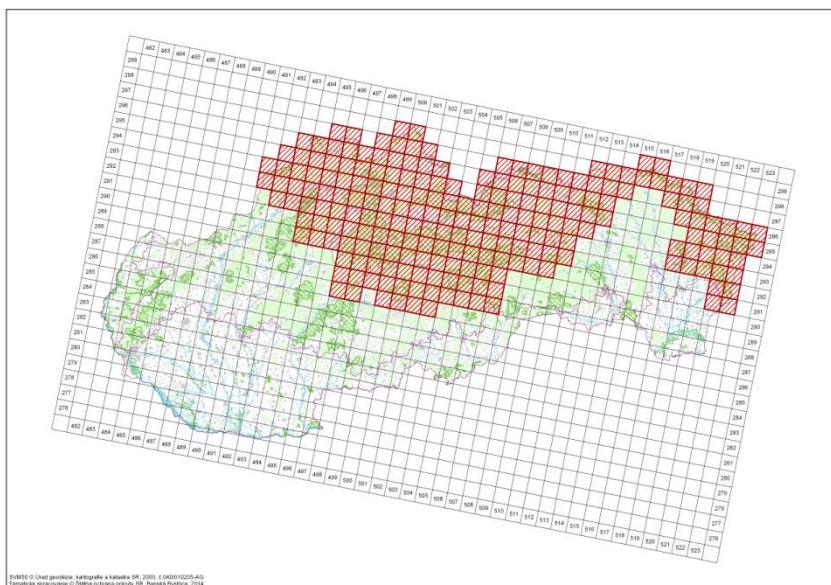
Triturus alpestris

The alpine newt in Slovakia is widely distributed in the Carpathian bioregion, usually in the elevation level of 500 – 1 800 m a.s.l., locally also less or more. It is absent or rare in the western part of the country.

Triturus montandoni

Distribution of the Carpathian newt in Slovakia is quite similar to that of *Triturus alpestris* (hypometric range between cca 500 – 1 700 m a.s.l.). It occurs mostly in the forest areas of northern Slovakia.

Distribution map of *Triturus montandoni*



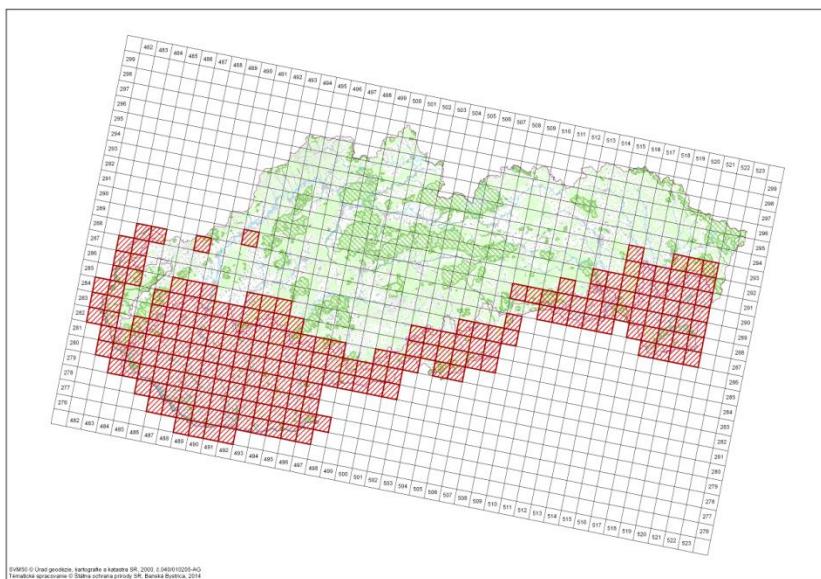
Triturus vulgaris

The smooth newt is the most distributed newt species in Slovakia, inhabiting both Pannonian and Carpathian bioregions, although it is more abundant in the Pannonian region. It reaches the upper hypsometrical limit at cca 1 000 m a.s.l. Hybrids with *Triturus montandoni* are known from areas with both species present. In lowland areas, it is ecologically more flexible and usually more abundant than *Triturus dobrogicus*, although its numbers had also declined in the last decades, mostly due to habitat degradation.

Bombina bombina

The fire-bellied toad in Slovakia is typical for the Pannonian bioregion, where the highest abundance occurs in the alluvial areas around big rivers, similar to *Triturus dobrogicus*. It occurs also in some southern parts of the Carpathian bioregion, usually in valleys adjacent to lowland areas. It is known to produce hybrids with *Bombina variegata* in large area of Pannonian-Carpathian contact zone.

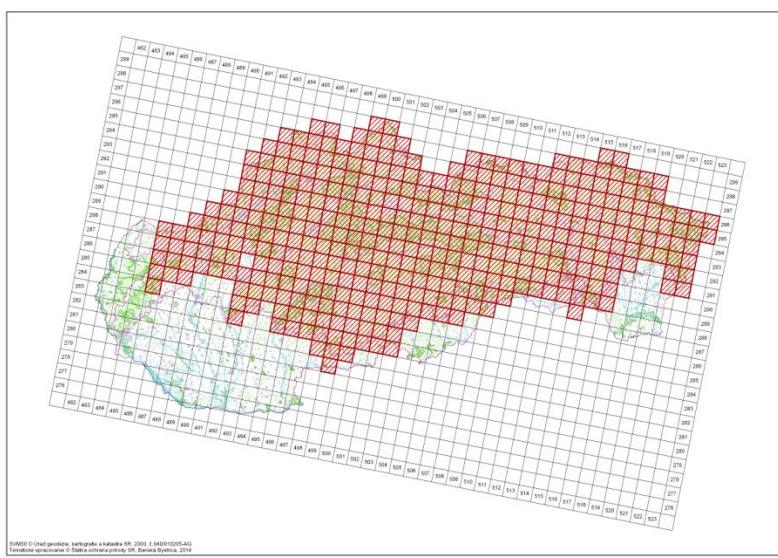
Distribution map of *Bombina bombina*



Bombina variegata

The Yellow-bellied toad in Slovakia is typical for the Carpathian bioregion. It occurs in most mountains of Slovakia (up to cca 1 600 m a.s.l.). It inhabits also some parts of the Pannonian region adjacent to mountains, often producing hybrids with *Bombina bombina*. Although both *Bombina* species are still quite abundant, they suffer from habitat degradation, mostly in the form of destruction of small water bodies.

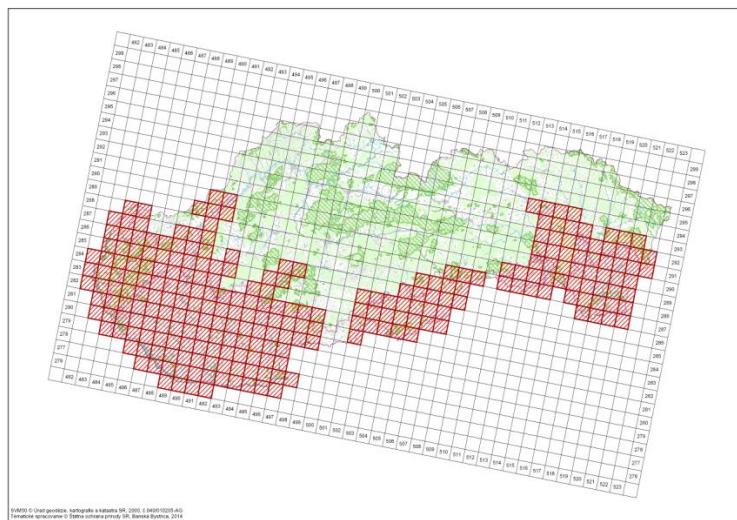
Distribution map of *Bombina variegata*



Pelobates fuscus

The common spadefoot toad is typical for the Pannonian bioregion, where it reaches the highest abundance in the alluvial areas of big rivers. Through the river valleys it reaches some southern parts of the Carpathian bioregion. Although locally abundant, it often suffers from degradation of breeding sites. The tadpoles often undergo a longer development period than other frog species, and are more susceptible to changes in water regime during the season.

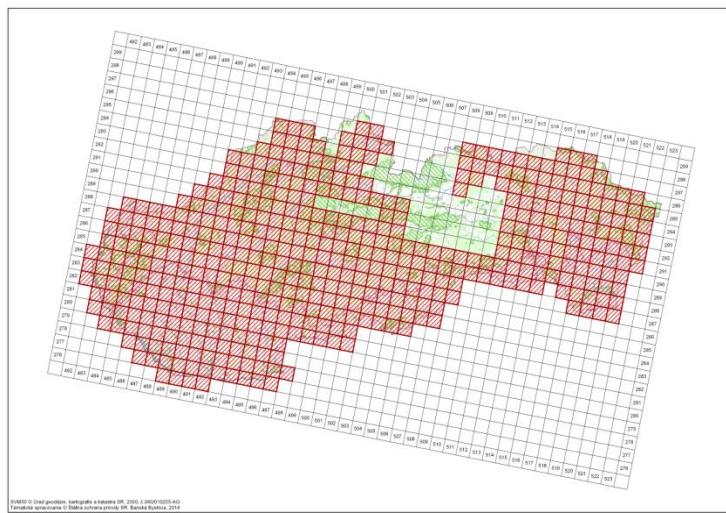
Distribution map of *Pelobates fuscus*



Hyla arborea

The tree frog is widely distributed in Slovakia, typically in the Pannonian bioregion, but also in lower parts of the Carpathian bioregion (rarely exceeding 1000 m a.s.l.). The highest abundance occurs in the alluvial lowland areas around big rivers.

Distribution map of *Hyla arborea*



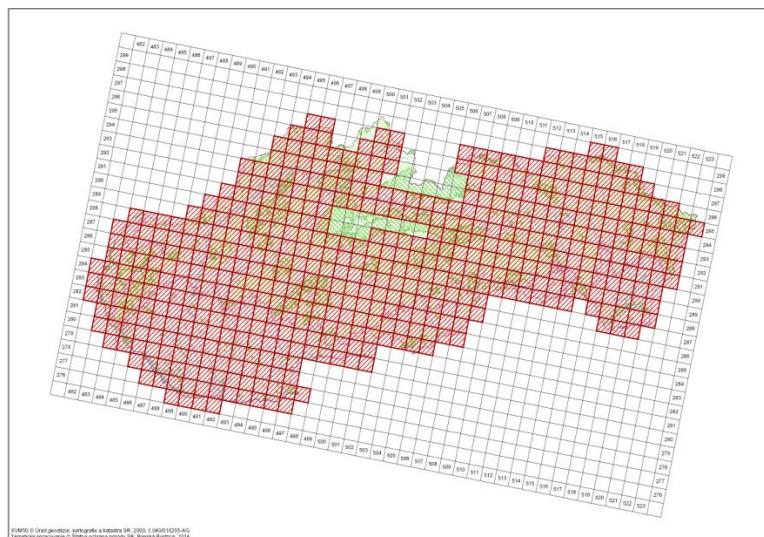
Bufo bufo

The common toad is one of the most widespread frog species in Slovakia, occurring both in the Pannonian and Carpathian bioregions (upper hypsometrical limit is cca 2000 m a.s.l.). Although still widespread and abundant, the species locally suffers from high mortality on roads or inappropriate management of ponds. It partially shows synanthropic tendencies.

Bufo viridis

The green toad is widespread in the Pannonian bioregion and also at lower altitudes in the Carpathian bioregion. It usually prefers the cultural land (fields, pastures, meadows, gardens). It shows synanthropic tendencies. Although widespread and abundant, this species locally suffers from high mortality on roads and destruction of temporal water bodies in the cultural land.

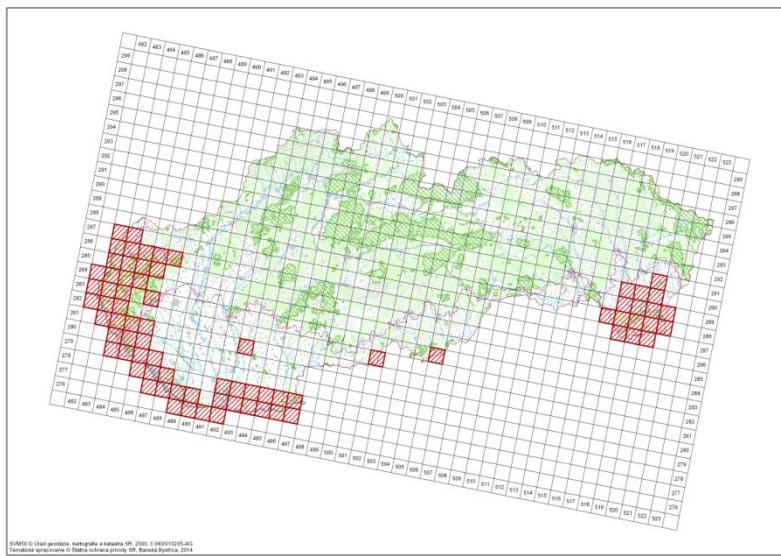
Distribution map of *Bufo viridis*



Rana arvalis

The Moor frog in Slovakia is distributed almost exclusively in the Pannonian bioregion, in the south-western and south-eastern parts of the country. It usually inhabits lowland alluvial forests, peat bogs and wet meadows. Although locally abundant, the species has only limited distribution in Slovakia and is susceptible to habitat degradation.

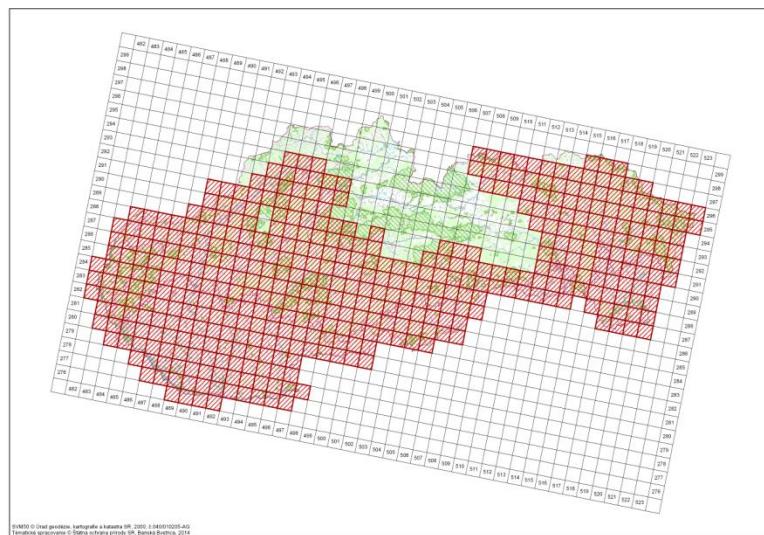
Distribution map of *Rana arvalis*



Rana dalmatina

The Agile frog is widespread in the Slovakia, mostly in the Pannonian bioregion, but also in the Carpathian bioregion, with tendency to range extension (recent reports from the Kysuce region in north-western Slovakia). It inhabits both deciduous forests and cultural land (meadows, pastures, gardens), up to cca 1 000 m a.s.l., and shows relatively high ecological plasticity. Still, some populations may be threatened by habitat degradation, mostly devastation of breeding sites.

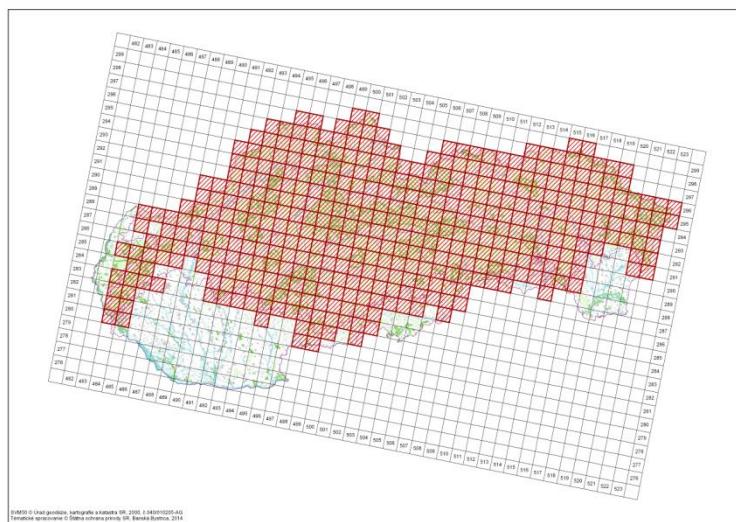
Distribution map of *Rana dalmatina*



Rana temporaria

The common frog is one of the most widespread frog species in Slovakia. It is typical for the Carpathian bioregion (up to cca 2 000 m a.s.l.), with only limited occurrence in the Pannonian bioregion (usually cooler and wet lowland habitats adjacent to mountains). It inhabits both deciduous and coniferous forests, also wet pastures, meadows and peat bogs.

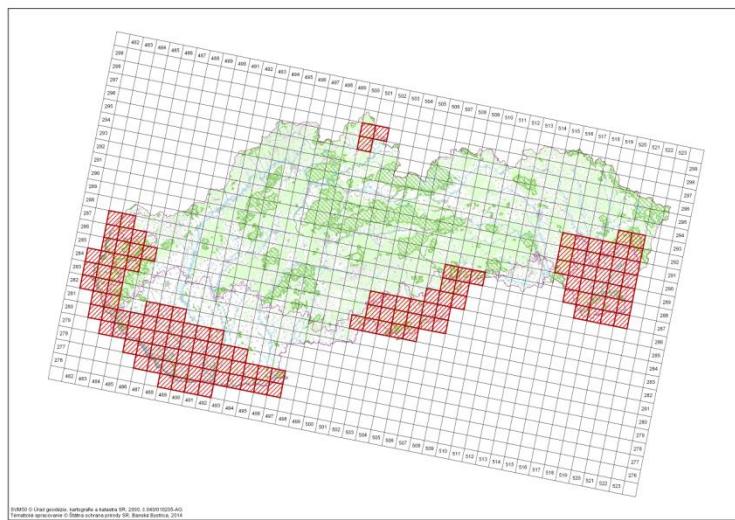
Distribution map of *Rana temporaria*



Rana lessonae

The species distribution in Slovakia is mostly in the southern parts of the country (Pannonian bioregion, with possible extension into neighbouring Carpathian region sites), yet there is a limited known occurrence in the northern part of the country (Orava region). Ecological demands are similar (although not identical) to *Rana arvalis*, the species prefers wet alluvial deciduous forests, wet meadows, peat bogs and smaller temporal water bodies.

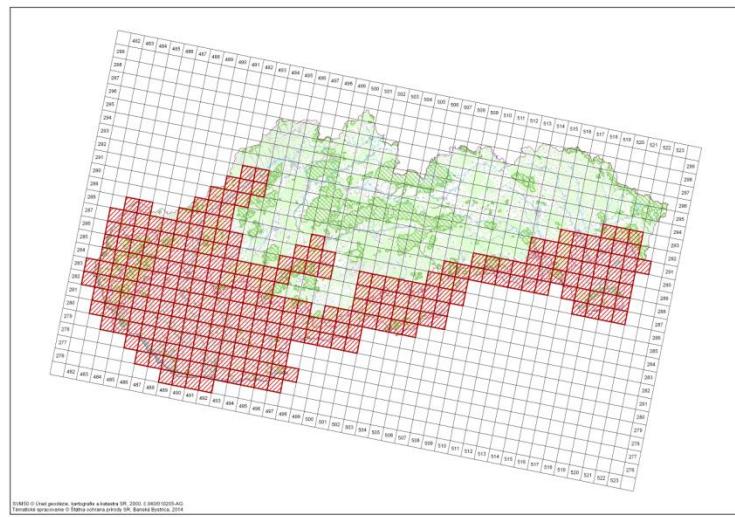
Distribution map of *Rana lessonae*



Rana ridibunda

The species in Slovakia is typical for the Pannonian bioregion, with some extend to Carpathian bioregion (usually along big rivers). Preferred habitats include river and canal banks, oxbows, fishponds and larger lakes. It is locally abundant, but sometimes suffers from inappropriate management of fishponds. Although rarely, it is still regarded a pest by some fishermen and thus persecuted.

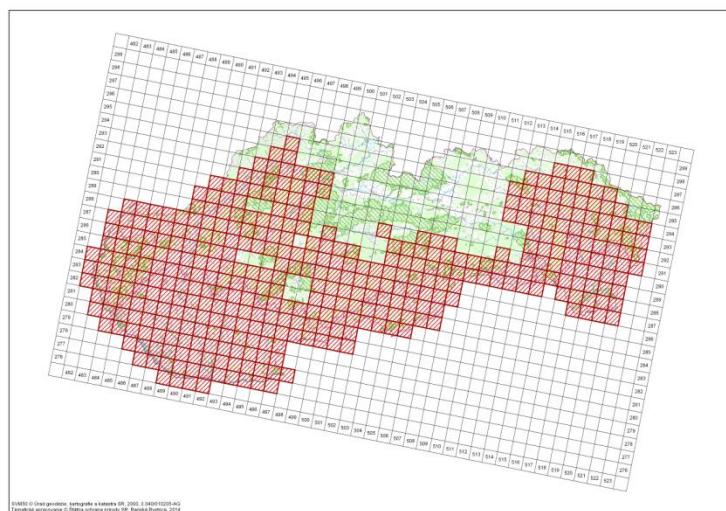
Distribution map of *Rana ridibunda*



Rana esculenta

This taxon is quite abundant in Slovakia, with the main occurrence in the Pannonian bioregion. In Carpathian bioregion, it usually inhabits areas in the river valleys. As a taxon of hybridogenetic origin (*Rana lessonae* x *Rana ridibunda*), many populations in the Pannonian bioregion show reproductive dependence on one of the parental species, usually *Rana lessonae*. Locally, it is threatened by habitat destruction (wetland devastation, inappropriate management of fishponds).

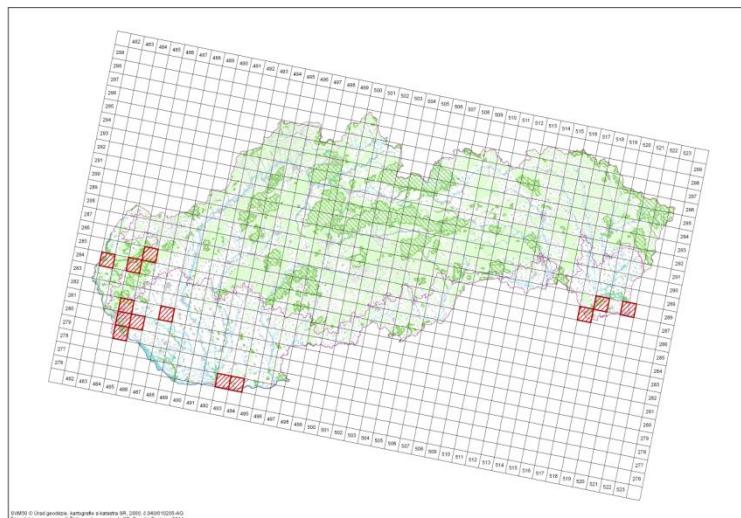
Distribution map of *Rana esculenta*



Emys orbicularis

The pond turtle in Slovakia is recently distributed at limited number of sites, restricted to southern parts of the Pannonian bioregion. Especially in the south-western part of the country, the populations are, at least partly, of allochthonous origin, results of reintroduction efforts. Recently, there are probably 2 known autochthonous reproducing populations, one in the eastern part of the country (Tajba site, near Streda nad Bodrogom), the second in the southern part of the country (Marcelová, near Komárno). The species prefers water bodies (canals, lakes, oxbows, marshes) in the lowland areas, often in the neighbourhood of dryer grass habitats (with suitable nesting sites). It is the most endangered reptile species of Slovakia, threatened mostly by habitat devastation (both wetlands and breeding grounds). Locally, the additional threat is an illegal collection by local inhabitants, especially gravid females migrating from water to breeding sites. Presence of alien turtle species at the sites may also negatively affect the pond turtle.

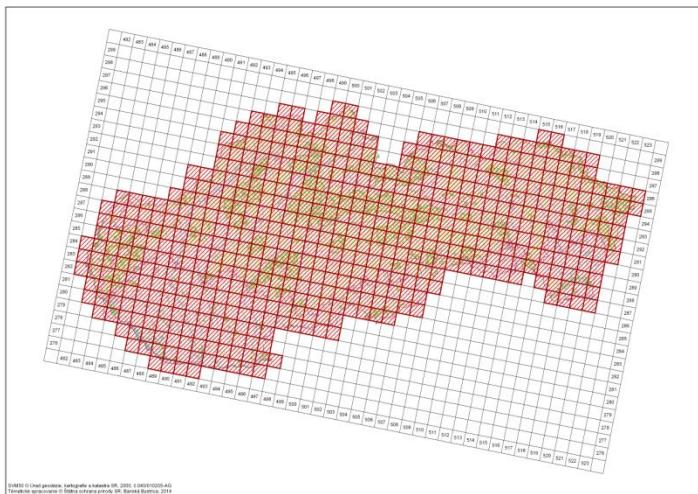
Distribution map of *Emys orbicularis*



Lacerta agilis

The sand lizard is one of the most widespread reptiles in Slovakia, especially in the Pannonian bioregion. It prefers grassy and rocky habitats, also shows synanthropic tendencies (gardens). At some known sites (for example several sites in Bratislava and surroundings), it has been replaced by the green lizard, which is larger and more aggressive in the interspecific competition. Many populations are threatened by habitat degradation. Locally it also suffers from excessive predation (mainly feral cats).

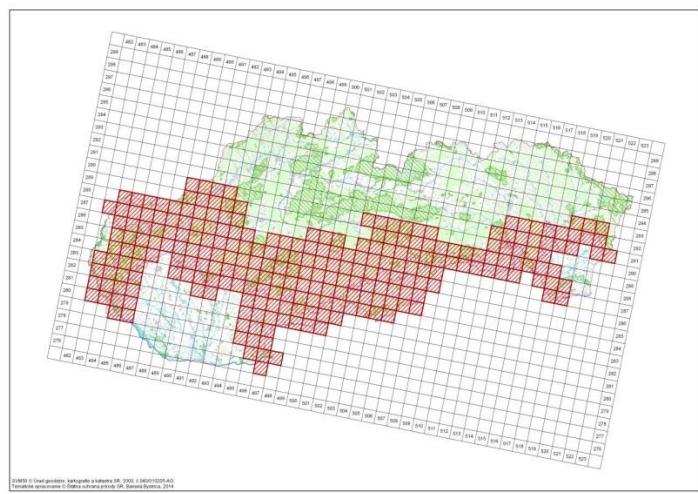
Distribution map of *Lacerta agilis*



Lacerta viridis

The green lizard is widespread in warmer parts of the country, both in the Pannonian and Carpathian bioregion. It mostly prefers south-oriented piedmont sites with steppe or bush habitats (often abundant in vineyards), it is absent in many lowland areas. The species is known to colonize some sites previously occupied by *Lacerta agilis*. On the other hand, many populations suffer from habitat degradation, mostly overgrowing of grassy habitats by dense bushes or trees.

Distribution map of *Lacerta viridis*

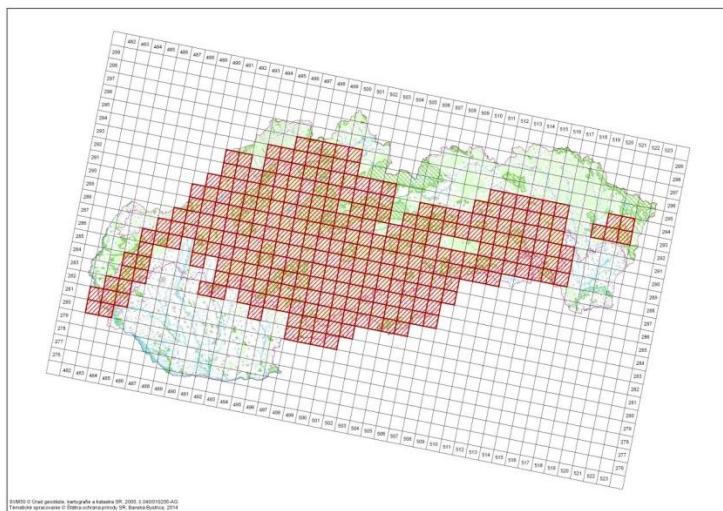


Podarcis muralis

The common wall lizard is widespread in warmer parts of the country, both in the Pannonian and Carpathian bioregion. It prefers south-oriented rocky habitats, often steep stone walls and ruins of castles, sometimes even river banks stabilized with big stones. Although widespread in Slovakia, many

populations are isolated. Main threat to this species is habitat degradation, mostly overgrowing of open rocky habitats by dense bushes or trees.

Distribution map of *Podarcis muralis*



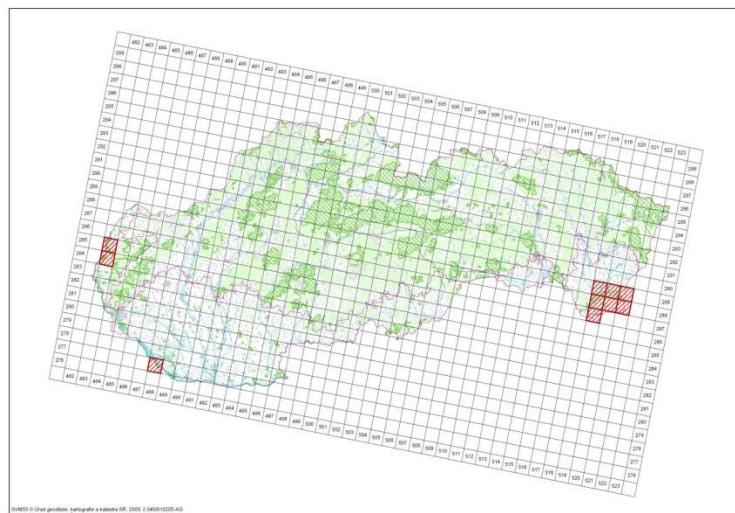
Zootoca vivipara vivipara

The Viviparous lizard in Slovakia occurs in two ecologically different forms, often regarded as two subspecies: *Z. v. vivipara* and *Z.v. pannonica*. The nominate form is widespread in the Carpathian bioregion, reaching altitudes of cca 2 000 m a.s.l. It usually inhabits sunny grassy habitats in forest areas and also montane meadows in high mountains.

Zootoca vivipara pannonica

This form of the viviparous lizard is very rare in Slovakia, restricted to only few sites in the Pannonian bioregion. Recently it is known to exist in the south-eastern part of the country (river Tisa region). There are older reports of this lizard from the Danube area (Gabčíkovo) and region of Záhorie, but recent occurrence was not confirmed. It inhabits microclimatic cooler habitats in lowlands (canal banks, swamp edges), shows affinity towards wet habitats. Due to its limited distribution, this taxon is endangered by habitat degradation.

Distribution map of *Zootoca vivipara pannonica*



Anguis fragilis

The slowworm is a widespread reptile species in Slovakia, especially in the Carpathian bioregion. It mostly inhabits forest habitats up to cca 1 000 m a.s.l. It is quite abundant, although some populations suffer from high mortality on forest roads.

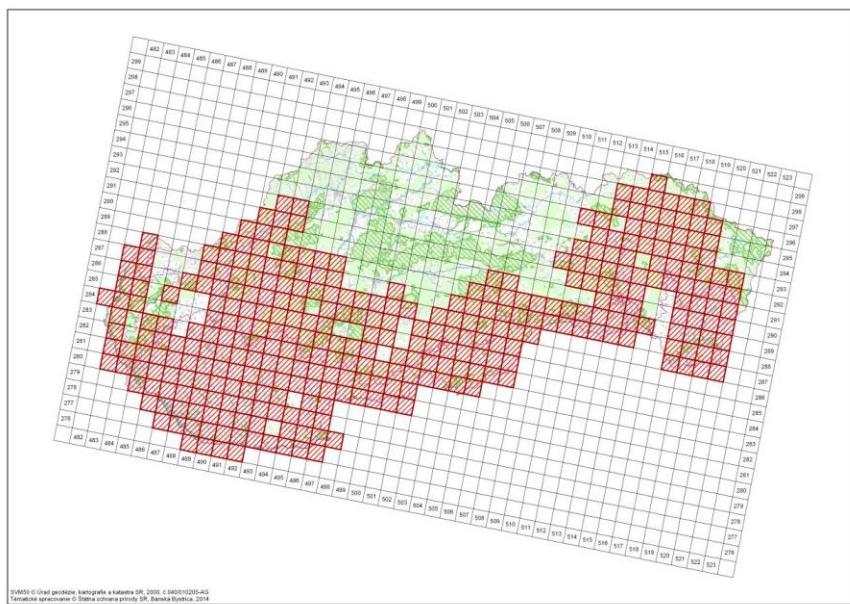
Natrix natrix

The grass snake is the most widespread and abundant snake species in Slovakia. It occurs both in the Pannonian and Carpathian bioregion. The highest abundance occurs in lowland wetland habitats such as river banks, fishponds, swamps. Although widespread, the numbers had declined in last few decades due to habitat degradation.

Natrix tessellata

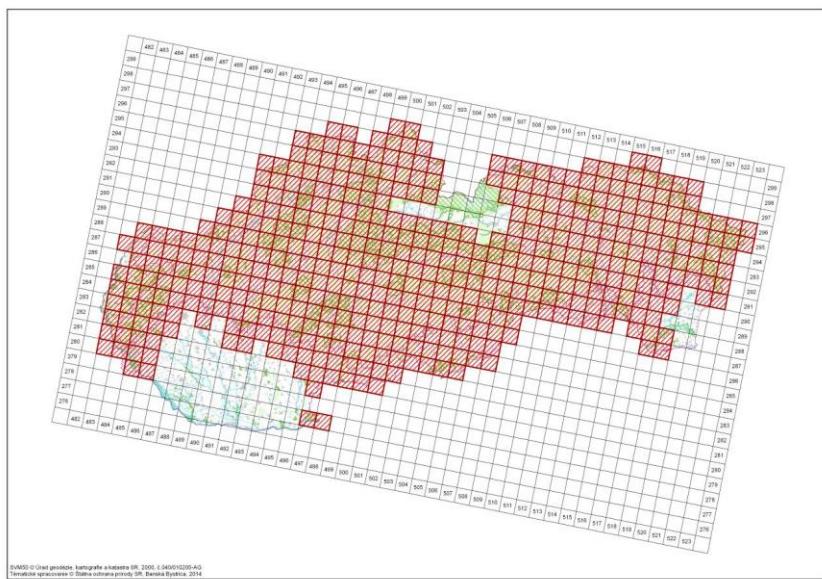
The dice snake in Slovakia occurs mostly in the Pannonian bioregion. Along rivers (Váh, Hron, Hornád, Laborec, Torysa, Ondava) it colonized also lower altitude areas in the Carpathian bioregion. Typical habitats are represented by rivers, canals, lakes and fishponds. Some populations suffer from mortality on roads (sometimes hibernation sites are distant from waters and the individuals are forced to cross roads) or loss of breeding sites. The species is locally persecuted by fishermen, who regard it as pest.

Distribution map of *Natrix tessellata*

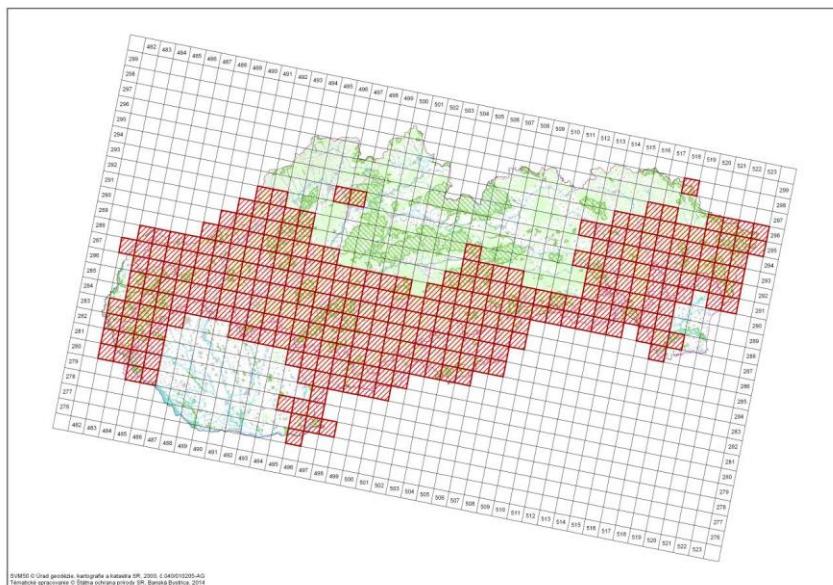


Coronella austriaca

The smooth snake in Slovakia is widespread both in the Pannonian and Carpathian bioregion, although often in small numbers. It prefers warmer and dryer rocky and grassy habitats. The species is threatened by habitat degradation, mostly overgrowing of open rocky and grassy habitats by dense bushes or trees.

Distribution map of *Coronella austriaca**Elaphe longissima*

The Aesculapian snake is widespread in warmer areas of the Carpathian bioregion, as well as in the Pannonian bioregion. It prefers open woodland (deciduous forests) and steppe-forest habitats in piedmont hills and lower mountains; it is absent in large part of lowlands where these habitats are scarce or absent. It is often abundant in vineyards, ruins of building and in gardens, often shows synanthropic tendencies. Local populations suffer from habitat degradation, loss of breeding or hibernation sites, sometimes also from human persecution or mortality on roads.

Distribution map of *Elaphe longissima**Vipera berus*

The Common viper is typical for the Carpathian bioregion, where it occurs in middle and higher altitudes (from cca 600 m to cca 2 000 m a.s.l.). It inhabits mostly open grassy or rocky sites, often with higher humidity, occurs also in peat bogs and upland marshes. Although still widespread, its numbers declined during the 20th century, mostly due to habitat degradation and human persecution. It is often rare

or absent in the western part of the country (mountain ranges of Malé Karpaty, Biele Karpaty). The species is most abundant in the northern, central and eastern part of the country.

THREATS AND PRESSURES

An increasing antropic pressure on the habitats occurs in Slovakia during the last years. Changes in land use, intense urbanization and demands for more transportation routes negatively affect habitats and herpetofauna (along with other animal and plant species). Other threats come with invasive alien species, through direct predation, interspecific competition, diseases or habitat degradation.

1) Mortality on roads: is an importatnt threat for most amphibian species, but also for many reptiles (snakes, slowworms). It is devastating especially for toad and newt species near their breeding sites. These species are capable of only slow locomotion and often great part of population can be destroyed.

2) Urbanization: in many parts of Slovakia, during the last decade a great amount of formerly agricultural land has been transformed into development sites (large areas of houses, factories, logistic buildings), which becomes serious threat to animal and plant species (habitat fragmentation or total disappearance, migration barriers, together with mortality on roads).

3) Forestry: Some amphibian species may be threatened by introduction of non-native tree species into the natural habitats, or entire change of tree species at larger areas. For example, natural habitats of *Salamandra salamandra* are deciduous forests (oak and beech forests), and the species is rare in the coniferous forests.

4) Abandonment of traditional land use: steppe and steppe-forest habitats (preferred by *Lacerta agilis*, *Lacerta viridis*, *Podarcis muralis*, *Coronella austriaca*) are often overgrew by bushes and trees due to cease of grazing, mowing or unsuitable management of these habitats.

5) Wetland degradation: aquatic environments as habitats for amphibian species (usually reproduction sites) are often threatened by decrease of water quality, drainage of wetlands, decreasing of the groundwater level, elimination of macrophytes, intensive aquaculture and introduction of particular fish species with negative effects on native plant or animal communities (especially *Triturus* species are susceptible to the presence of fish in the water habitats). The most drainage canals are situated in lowlands in south-west, south and south-east of Slovakia. Many of the wetland reserves are isolated from their surroundings and from the nearest wetlands.

6) Invasive alien species: Many invasive plant species overgrow natural vegetation and change the soil conditions, amount of solar energy reaching the ground and communities of invertebrates (food source for amphibians and some insectivorous reptiles). Invasive animal species may be dangerous predators both on the ground and in the water, or at least are competitors with native species, and may spread parasites, to which the native species are susceptible.

MANAGEMENT MEASURES

Since 2013 the State Nature Conservancy of the Slovak Republic has started systematic monitoring of all species of the Community interest in 2013, including **species from Appendices of the Bern Convention**. The purpose of the monitoring project is the assessment of the conservation status on local and national levels. Detailed data are collected by a group of experts in the field based on the approved methodology and following the guidelines for the frequency of the monitoring. The results of the detailed monitoring will be available in 2015.

The rescue program of European pond turtle (*Emys orbicularis*) was implemented during 2002 – 2006 and it included monitoring of the species and mapping of its suitable habitats . Tajba is the only known locality with the stable population of the European pond turtle in Slovakia, therefore conservation measures (protection of the eggs, care for young individuals and their restitution to the site, etc) were implemented in this locality. Activities are undertaken in cooperation with scientists as well as with public. **Ex-site conservation** of the species is based mainly in e breeding station in the National Nature

Reservation Šúr, where turtles captured at the site Györ in Hungary are bred. Up to nowadays 80 young turtles were bred here, 20 of them were released to Biskupické rameno of Danube and the rest was released in Borská nížina.

CONSERVATION STATUS

In 2013 the Slovak Republic submitted to the European Commission **report** according to the Article 17 of the EU Habitats Directive Slovak Republic **covering the period 2007-2012 with evaluation of habitats and species of Community interest including the herpetofauna ones**. Assessment of their conservation status (unknown – “grey”, favourable – “green”, nonfavorable – other colours) is given in the table.

Species	Conservation status (assessed in 2013)	
	Alpine bioregion	Pannonian bioregion
<i>Ablepharus kitaibelii</i>		U1
<i>Bombina bombina</i>	U2	U1
<i>Bombina variegata</i>	U1	XX
<i>Bufo viridis</i>	U1	U1
<i>Coronella austriaca</i>	U2	U2
<i>Elaphe longissima</i>	U2	U2
<i>Emys orbicularis</i>		U2
<i>Hyla arborea</i>	U1	U1
<i>Lacerta agilis</i>	U1	U1
<i>Lacerta viridis</i>	U1	U1
<i>Lacerta vivipara pannonica</i>		U1
<i>Natrix tessellata</i>	U1	U1
<i>Pelobates fuscus</i>	U1	U1
<i>Podarcis muralis</i>	U1	U1
<i>Rana arvalis</i>		U2
<i>Rana dalmatina</i>	U1	U1
<i>Rana esculenta</i>	U1	U1
<i>Rana lessonae</i>	U2	U2
<i>Rana ridibunda</i>	U1	U1
<i>Rana temporaria</i>	FV	U1
<i>Triturus cristatus</i>	U2	
<i>Triturus dobrogicus</i>	U2	
<i>Triturus montandoni</i>	U1	

FV – Favourable conservation status

U1 – Unfavourable conservation status - Inadequate

U2 – Unfavourable conservation status – Bad

XX – Unknown conservation status

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”THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA” / L’« EX-RÉPUBLIQUE YOUGOSLAVE DE MACÉDOINE »

REPORT

AMPHIBIANS (AMPHIBIA)

Fauna of amphibians in Macedonia is well studied. It is a relatively small group of **15** amphibian species, of which **10 without tail (frogs)** and **5 with tail (salamanders and newts)**. The fauna of Macedonia includes 3 Balkan endemites: Macedonian Crested Newt (*Triturus macedonicus*), Balkan stream fog (*Rana graeca*) and Balkan frog (*Pelophylax kurtmuelleri*), as well as subspecies of restricted Balkan natural range, such as Common newt (*Lissotriton vulgaris graecus*), Balkan Spadefoot Toad (*Pelobates syriacus balcanicus*) and Yellow-bellied Toad (*Bombina variegata scabra*).

Amphibians in Macedonia do not include threatened species at global level (IUCN 2014). 7 species are included in Appendix II, and rest of 8 species are included in Appendix III of the Bern Convention. 3 amphibian species: Common newt (*Triturus carnifex*), Balkan Crested Newt (*Triturus karelinii*) and Yellow-bellied Toad (*Bombina variegata*) are included in Appendix II, and these species and 5 more are included in Appendix IV of the EU Habitats Directive. On national level, 8 species are included in List 2 – Protected wild species (MEPP, 2011).

REPTILES (REPIILIA)

According to the latest data, there is information on the spread of 32 species (four species of tortoise, 12 species of lizards and 16 species of snakes). Of those, 11 species have wide distribution in the country, 10 species are restricted on certain habitats and regions, and the rest of 11 have very limited distribution. There are also two Balkan endemites: Dalmatian Algyroides (*Algyroides nigropunctatus*) and Balkan Whip Snake (*Hierophis gemonensis*). At subspecies level, endemic are deemed Hermann's Tortoise (*Testudo hermanni boettgeri*), Adder (*Vipera berus bosniensis*) and Orsini's Viper (*Vipera ursinii macrops*), (Petkovski 2009). Besides relatively low number of species, reptiles belong to as many as nine zoo-geographic regions. The highest number belongs to representatives of Eastern Mediterranean zoo-geographic region, next are representatives of Turan Mediterranean zoo-geographic region (6 species) and South European zoo-geographic region (5 species). Quantitative research is almost absent, except those conducted on the island Golem Grad on Prespa Lake.

Orsini's Viper is considered globally vulnerable species (IUCN 2013) and is included in Appendix 1 of Washington Convention (CITES). Near threatened are: European Pond Terrapin (*Emys orbicularis*), Hermann's Tortoise (*Testudo hermanni*) and Four-lined Snake (*Elaphe quatuorlineata*). 24 reptile species are included in Appendix 2, and the rest of eight are included in Appendix 3 of the Bern Convention. 7 reptilian species are included in Appendix 2, and the same species and 18 more are also included in Annex 4 of Habitat Directive. On national level, only one species Orsini's Viper (*Vipera ursinii macrops*) is strictly protected species (List 1), and 22 species hold status of protected animals (List 2, MEPP).

Specific Action Plan for wild animals' protection has not been adopted, nor specific action plans for amphibians and reptiles of international and national conservation status. Monitoring activities are carried out for wild animals in the three National Parks: NP PELISTER, Bitola, NP GALICHICA, Ohrid and NP MAVROVO, Mavrovo Anovi, including also wild species from the classes of amphibians and reptiles. In 2010, with the financial support from GEF and UNDP, MEPP engaged expert team of zoologists from Macedonia and Europe and they completed expert Analysis and valorization of species diversity on national level. Publication was issued in

Macedonian and English and CD ROM. It covers wild species from the classes of amphibians and reptiles as well (MEPP, GEF, UNDP, 2010).

In the period 2013-2014, MEPP in cooperation with GEF and UNEP, implemented project to supplement the National Biodiversity Strategy with Action Plan by 2020 and incorporate global Aichi Targets. The Fifth National Report was prepared and submitted to CBD. The Strategic Action Plan (SAP/BD) includes sets of actions and measures for individual groups of plants, fungi and animals. The part on wild animals' protection includes the classes of amphibians and reptiles.

Due to lack of financial resources, capacities of competent state authorities, as well as scientific and professional institutions, protected areas' managers and non-governmental sector have not been strengthened sufficiently yet. In the period 2010-2014, several projects, workshops, trainings and seminars were carried out on national and regional levels, involving also expert zoologists from Macedonia. General assessment is that little has been done towards raising the awareness among population and youth on national and local levels, with regard to preservation of biodiversity, including also preservation of wild species of the classes of amphibians and reptiles.

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UKRAINE / UKRAINE

CONSERVATION OF AMPHIBIANS AND REPTILES IN UKRAINE (May 2015 to date)

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General status of herpetofauna in Ukraine

According to resent research, there are 22 species of amphibians and 25–26 species of reptiles. Among them 8 amphibians and 11 reptile species are listed in the Red Data Book of Ukraine (2009). Inventory and survey of amphibian and reptile populations in Ukraine are provided by many long-term studies (Bulakhov et al, 2004; Pysanets, 2012, 2014 and others).

Table 1 – Amphibian and Reptile Species of Ukraine

	Amphibians (Amphibia)		Reptiles (Reptilia)	
	Species	Protection	Species	Protection
1.	<i>Salamandra salamandra</i>	RDBU	<i>Emys orbicularis</i>	II
2.	<i>Ichthyosaura (Triturus) alpestris</i>	RDBU	<i>Mediodactylus kotschyi</i>	II, RDBU
3.	<i>Lissotriton (Triturus) montandoni</i>	II, RDBU	<i>Anguis fragilis</i>	
4.	<i>Lissotriton (Triturus) vulgaris.</i>		<i>Pseudopus apodus</i>	II, RDBU
5.	<i>Triturus cristatus</i>	II	<i>Darevskia armeniaca</i> ***	
6.	<i>Triturus karelinii</i>	II, RDBU	<i>Darevskia dahli</i> ***	
7.	<i>Triturus dobrogicus</i>	II, RDBU	<i>Darevskia lindholmi</i>	
8.	<i>Bombina bombina</i>		<i>Eremias arguta</i>	
9.	<i>Bombina variegata</i>	II, RDBU	<i>Lacerta agilis</i>	II
10.	<i>Pelobates fuscus</i>	II	<i>Lacerta viridis</i>	II, RDBU
11.	<i>Pelobates vespertinus</i> *		<i>Podarcis taurica</i>	II
12.	<i>Bufo bufo</i>		<i>Zootoca vivipara</i>	
13.	<i>Bufo viridis</i>	II	<i>Coronella austriaca</i>	II, RDBU
14.	<i>Bufo calamita</i>	II, RDBU	<i>Elaphe dione</i>	RDBU
15.	<i>Hyla arborea.</i>	II	<i>Elaphe sauromates</i>	II, RDBU
16.	<i>Hyla orientalis</i> **		<i>Zamenis longissimus</i>	II, RDBU
17.	<i>Rana dalmatina</i>	II, RDBU	<i>Zamenis situla</i>	II, RDBU
18.	<i>Rana temporaria</i>		<i>Hierophis caspius</i>	II, RDBU
19.	<i>Rana arvalis</i>	II	<i>Natrix natrix</i>	
20.	<i>Pelophylax ridibundus</i>		<i>Natrix tessellata</i>	II
21.	<i>Pelophylax lessonae</i>		<i>Vipera (Pelias) berus</i>	
22.	<i>Pelophylax kl. esculentus</i>		<i>Vipera (Pelias) nikolskii</i>	RDBU
23.	–		<i>Vipera (Pelias) renardi</i>	RDBU

* Based on molecular-genetic data the Pallases spadefoot was validated recently (Litvinchuk et al., 2013).

** Based on mitochondrial and nuclear sequences of DNA study *H. orientalis* is recognized in Eastern Europe (Stöck et al., 2012).

*** Successfully introduced in one locality of Zhytomir province in 1967 (Dotsenko, Darevsky, 2005).

RDBU – is included in the Red Data Book of Ukraine.

II – is listed in the Appendix II “Strictly protected fauna species”, in force since 1 March 2002. All other species, except invasive ones, are in the Appendix III on default.

Recorded alien species for Ukraine:

1. *Podarcis muralis*. In 2012 two populations were found in urbanized biotopes of Odessa province: Reni seaport and Kagul lake shore. No negative effect for native fauna is supposed. That species is listed in the Appendix II of the Bern Convention.
2. *Tenuidactylus fedtschenkoi*. One isolated stable population of the Western Pamirs-Altai endemic was found in Odessa. No negative effect for native fauna is supposed. The possible threat for the Crimean *Mediodactylus kotschyi*, in case of further migration, is under discussion.
3. *Trachemys scripta* is sporadically registered in three provinces of Ukraine: Odessa, Zakarpatska (Uzhgorod) and Sumy. For the moment, there is not any evidence of the stable population occurrence. However, we cannot neglect the possibility of negative prospects. Climate changes and worming may form acceptable environmental conditions for wintering of the red-eared sliders in the near future. In that case, Ukraine will face a problem known in other European countries inhabited by *T. scripta*.

General principles of the conservation of amphibians and reptiles in Ukraine are set by the following Laws:

The Law of Ukraine "On Animal World" enacts the general system of animals, including amphibians and reptiles, conservation.

The Law of Ukraine "On Nature Reservation Fund of Ukraine" determines the conservation of especially valuable natural complexes of Ukraine; amphibians and reptiles are the part of those complexes.

The Law of Ukraine "On the Red Data Book of Ukraine" forms a basis for conservation of rare and endangered species, including amphibians and reptiles.

The Order of the Ministry of Environmental Protection (reorganized in the Ministry of Ecology and Natural Resources, 9th December 2010) № 313, 17.06.2009 "On adoption of the list of animals to be included in the Red Data Book (animal world) ..." indicates amphibian and reptile species listed in the Red Data Book of Ukraine".

The Order of the Cabinet of Ministers № 1030 (07.12.2012) sets the compensatory sums to be paid for illegal capture, killing or damage of animal (amphibians and reptiles as well) and plant species included in the Red Data Book of Ukraine.

In 2013, the Order of the Cabinet of Ministers № 541 enacts the fixed rates for calculating damage of illegal capture or killing of animals, which are not listed in the Red Data Book of Ukraine, in protected reservations. Unfortunately, in most cases the mechanism of the payment of a fine does not work.

Ukraine takes measures to control international trade by amphibian and reptile species in the frames of CITES

At a regional level, the authorities of many Ukrainian provinces (oblasts) and even of Kyiv city adopted the regional Red Lists of species to be protected in a region in addition to the protected species listed in the Red Data Book of Ukraine. As a result, the local minor populations of amphibians and reptiles are under legal protection. Unfortunately, the conservation of amphibians and reptiles outside strictly protected areas is mostly benign intentions than widespread effective practice.

Nature Reserves as a core of amphibian and reptile conservation

In reality, amphibians and reptiles are conserved indeed in protected territories along with other species. There are 11 different types of protected areas across the Ukraine. Among them:

- Four Biosphere Reserves – 6.4 % of total protected area in the country;
- 19 Nature Reserves – 5.24 %;
- 48 National Nature Parks – 30.9 %;
- 77 Regional Landscape Parks – 19.42 %;
- 3,102 Wildlife Preserves (may be considered as Managed Resource Protected Area according to IUCN criteria) – 34.5 %;
- 3,388 Natural Monuments – 0.7 % and some others.

Altogether about 8100 protected territories of total area of 3.667 million ha are registered in Ukraine. Despite so many protected areas, a considerable part of them has no active protection because of absence of any staff. It is usual for many wildlife preserves, in which no staff is provided and the conservation measures are limited by a consciousness of local people only.

In different provinces of Ukraine, the protected area varies from 2.25 to 15.7 %. In average about 3.6 % of total area of Ukraine are protected. According to the Law of Ukraine № 2818-VI of 21.12.2010 “On basic principles (strategy) of state Environmental policy of Ukraine for a period till 2020” there is a task to enlarge the protected area to up 10-15 % of the total area of Ukraine. Before the armed conflict at the Eastern Ukraine, the total area of nature protection increased every year. For example, in 2013 the total area of nature reservations increased by 11,901 ha. As a rule new nature protection areas are regarded as important tools to conserve herpetofauna (Gasso, Pyshneva, 2015).

Present political and economic situation limits the possibilities for local authorities to organise nature protection management of new territories. In spite of real difficulties, the organization of new 18 nature protection areas and the territorial aggrandizement of eight areas of 15,681.37 ha as a whole are at a finishing stage. Planned organisation of eight new protective areas and enlargement of nine existing ones should contribute in the conservation of amphibians and reptiles. In comparison with 2010, the total area of protected territory increased by 399,400 ha, and by 1,268,400 ha as compared with 2000.

All the species of amphibians and reptiles of Ukraine, except invasive ones, are conserved in nature-protected areas.

Many of protected areas are planned to be a part of the **Emerald Network** in Ukraine. About 151 potential Emerald sites in Ukraine are proposed. Amphibians and reptiles are obligatory surveyed for the substantiation of including a site into the Emerald Network.

State of Action Plans in Ukraine

*Crested Newt *Triturus cristatus* species complex.*

Action Plan for the Crested Newt *Triturus cristatus* species complex in Europe, adopted by Standing Committee in November 2006, contains 13 urgent priority actions. Unfortunately, Ukraine did not attend that Meeting. Ukraine was not active in implementation of all the actions. The most important reason is the very complicated political and financial state of Ukraine from 2008, the year of economic crisis beginning. The last year and a half are quite complicated for the well-known events in Crimea and Eastern Ukraine. Nevertheless, some actions are implemented.

Table 2 – Actions on Crested Newt *Triturus cristatus* species complex implemented in Ukraine

	Urgent Priority Actions	Comments
1.	4.1.1.	Most of key areas of all the species (<i>Triturus cristatus</i> <i>Triturus karelinii</i> and <i>Triturus dobrogicus</i>) are protected from the habitat loss by incorporation in nature reservations and considered Emerald Network.
2.	4.2.3.	The work on decreasing use of pesticides is under consideration of government and local authorities, but generally, it has no connection with the newt populations.
3.	4.2.4. 4.2.5.	Introduced predatory fish and rotan, <i>Percottus glenii</i> , are under intensive research in Ukraine, but the eradication measures are not developed.
4.	4.3.1.	Regular study of the state of the newts' populations is carried out in nature reserves and important habitats. Irregular research is known for other habitats as well. A range of recommendations is often proposed, but its implementation is not reported.

Triturus cristatus. During April–May in the water bodies of the Zakarpatska province the number of newts reaches 2–20 specimens per 100 m of the shoreline. That was recalculated in about 0.2 newts per m^2 . B. R. Schmidt (2005) indicated that the changes in number of *T. cristatus*, as well as of salamanders, depend on survivability of adults and renewal by the young generations. The important indices of the population's viability are: 1) Nb/N (Nb is the effective quantity of breeding adults; N – is the total population size); 2) Ne/N (Ne is the effective population size). Both indices vary from 0.10 to 0.19 and 0.09–0.16, respectively. Empirical calculations suppose the secure population existence at $Ne/N \approx 0.1$. It may mean that those populations are relatively stable.

Triturus karelinii. Some reported data from the Crimea describe the abundance from 8–11 to 40–50 specimens per 50–70 m of the shoreline.

Triturus dobrogicus. In Zakarpatska and Odessa provinces, the abundance reaches 1.5–12 specimens per 100 m of the bank line (0.4–1.7 per m^2 of the water body). The fluctuations from year to year are considered as a function of climate change. In the Danube Biosphere Reserve, the number of the newts is estimated from few to numerous.

Conservation of the Aesculapian Snake (*Zamenis longissimus*)

Action Plan for the Conservation of the Aesculapian Snake (*Zamenis longissimus*) in Europe, adopted by Standing Committee in November 2006, contains 11 urgent priority actions. Ukraine was not indicated as a relevant country in the Action Plan. Nonetheless, some actions are executed.

Table 2 – Actions on Conservation of the Aesculapian Snake (*Zamenis longissimus*) implemented in Ukraine

	Urgent Priority Actions	Comments
1.	4.1.1.	The isolated population is under Governmental protection. The isolated population of <i>Zamenis longissimus</i> occupied biotopes of the banks of Pivdennyi Bug River in Mykolaiv province. The National Nature Park "Buzkyi Guard" was organised for the purpose to conserve the population.
2.	4.2.1.	The required management to ensure connectivity between the habitats is under discussion. The mostly closed site (about 200 km to the North-West) of the Aesculapian snake records was reported in 1959.
3.	4.2.2	Artificial egg-laying sites are not necessary for the presence of natural ones.

4.	4.2.3. 4.6.1. 4.6.2.	Ukraine was not invited to participate. Taking into account the existence of the North-East boundary of the Aesculapian snake range in Ukraine, the Ukrainian contribution to the further work is imperative.
5.	4.5.1.	Recent field surveys summarised data on status and conservation needs of the Aesculapian snake populations (Dotsenko et al, 2013).
6.	4.9.1.	Educational and public awareness materials were produced for local people. Broadsheets and leaflets highlighted the snake's safety and importance for nature.

Populations in Zakarpatska province are relatively abundant and not considered as isolated. In sites of high abundance of the Aesculapian snake the accidents of killing by vehicular traffic are often reported by researchers, local people and border-guards. The South-West part of Ukraine is separated from the other territory by the Carpathian Mountains. By moving to the North and East the abundance of populations decreases. Single records of *Zamenis longissimus* are testified from Lviv, Ternopil, Ivano-Frankivsk, Chernivtsi and Khmelnitsky provinces. The population is attached to the left bank of the Dniester middle course. The biggest population there is in the National Nature Park "Dnistrovsky Canyon" (Ternopil province). The isolated population of the Aesculapian snake on the banks of Pivdennyi Bug River was estimated as 350 individuals.

In general, the main risks for amphibians and reptiles in Ukraine do not differ from the same in other European countries: destruction of habitats, fragmentation, road killing, environmental pollution, people hostile attitude and killing, illegal capture/trade, etc.

New threats for amphibians and reptiles:

1. Act of war in Eastern Ukraine. Military conflict makes no possible management and research of populations and protected areas of interest. The grievous news was on the heavy fire in "Provalsky Step" Nature Reserve in Lugansk province last year. Consequences for herpetofauna should be fatal, but no survey is possible.
2. Loss of control in the Crimea. Ukraine has no any control over the nature conservation in the Crimea. Available data testify the arms buildup and militarisation of the area. We should understand that local populations of endangered amphibian and reptile species are few in number and occupy limited areas. For that reason they are quite vulnerable and state of affairs is not predictable.
3. Impoverishment of people. About 1.2 million of internal migrants and pauperisation of many people may affect amphibian and reptile populations. The possible reasons are destruction of habitats by illegal tree felling, exploitation of forests and water bodies, ploughing and building. The illegal catch and trade of animals may be considered as a source of income. Living in poverty does not allow thinking about conservation of amphibians and reptiles in a community. It is quite less important than economic or social problems they faced to.

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